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GEOLOGICAL INVESTIGATION OF THE LOWER RED RIVER-ATCHAFALAYA BAS--ETC(U)
JUL 74 F L SMITH, D P RUSS

UNCLASSIFIED WES-TR-S-74-5 NL

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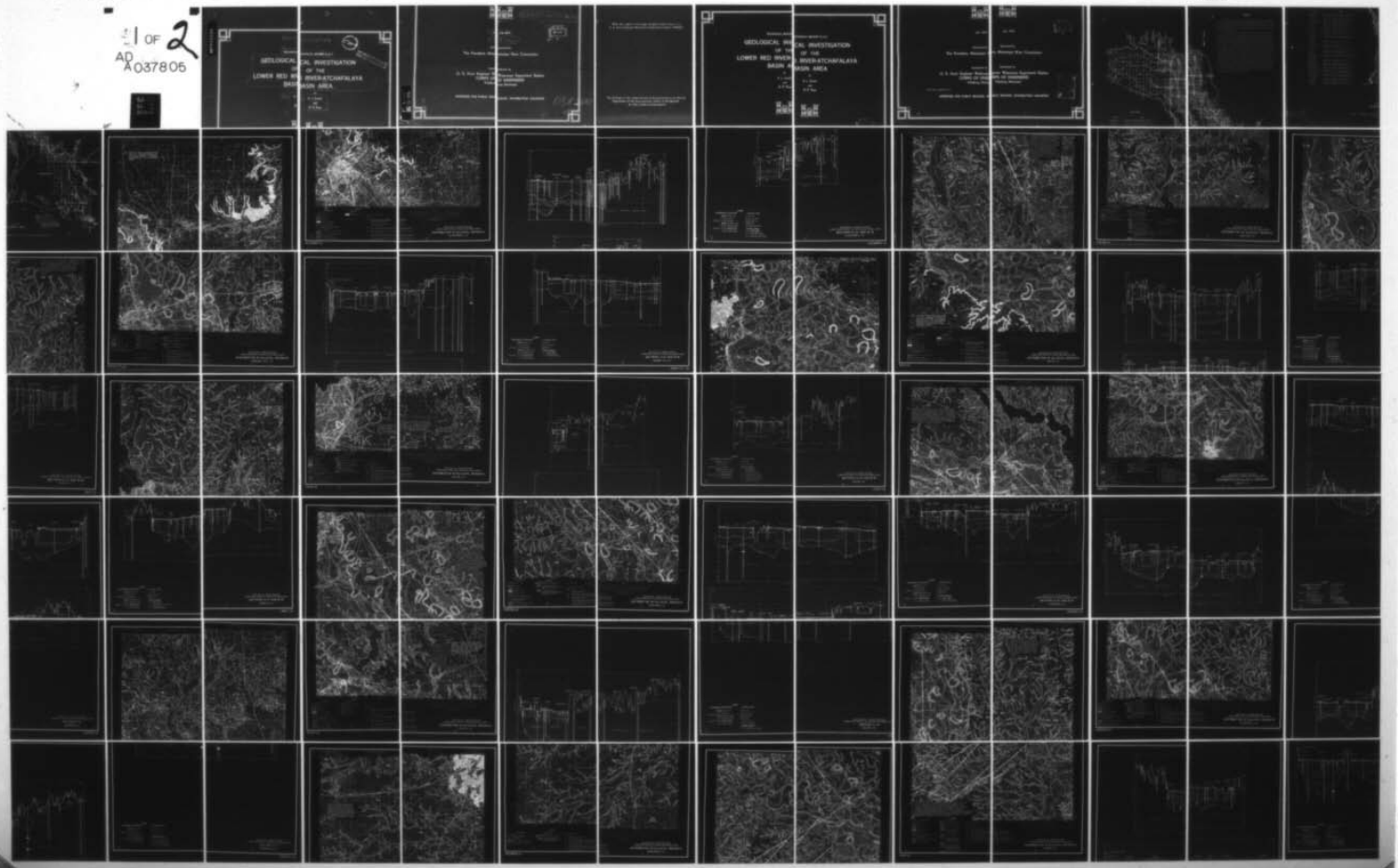

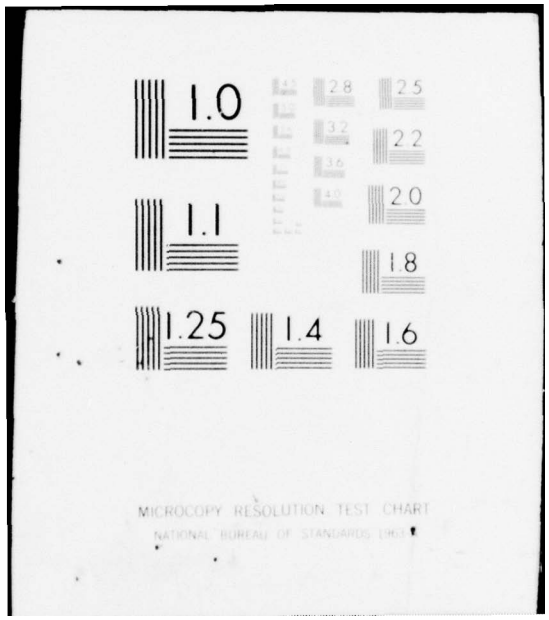
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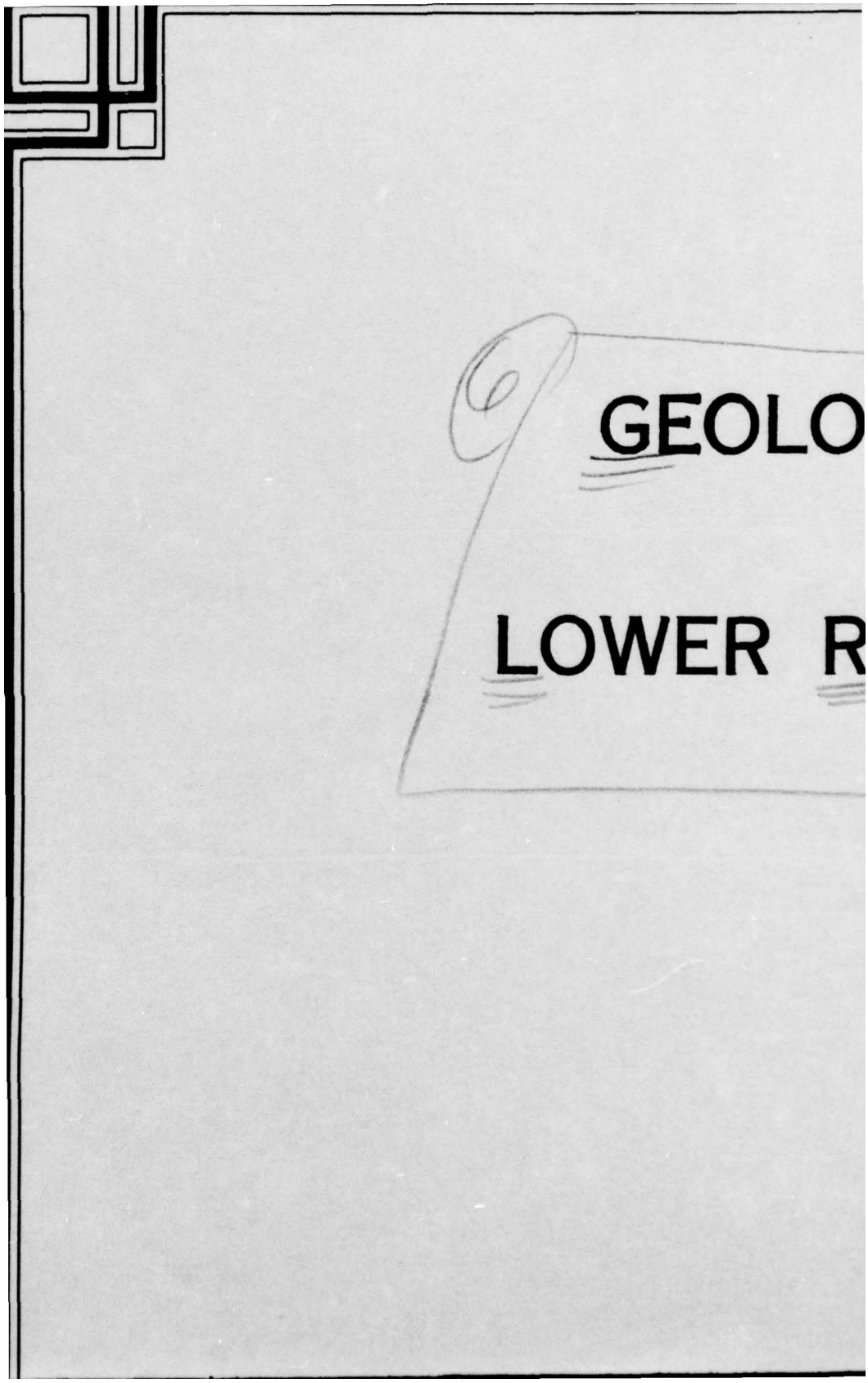
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963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ECHNICAL REPORT S-74-5

CAL INVESTIGATION
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D RIVER-ATCHAFALAYA
BASIN AREA

by

F. L. Smith
and
D. P. Russ

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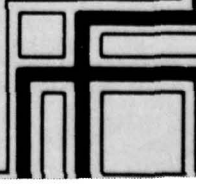

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The findings in this report are not to be construed as an official
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by other authorized documents.

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BASIN AI

by

F. L. Smith

and

D. P. Russ

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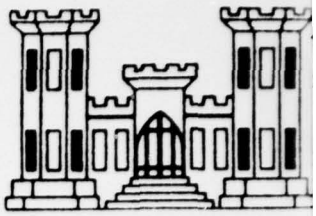

July 1974

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Vicksburg, Mississ

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July 1974

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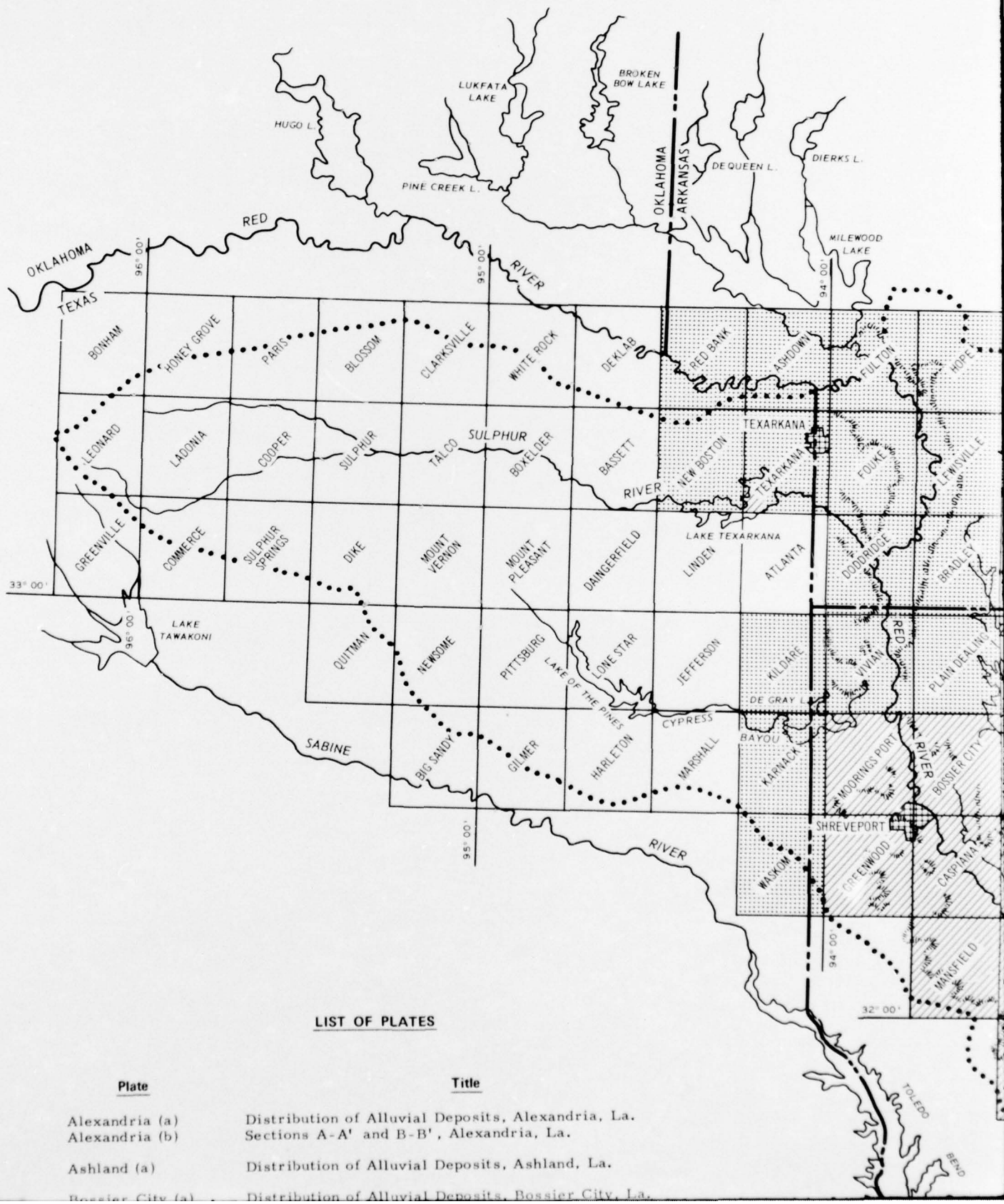


LIST OF PLATES

Plate	Title
Alexandria (a)	Distribution of Alluvial Deposits, Alexandria, La.
Alexandria (b)	Sections A-A' and B-B', Alexandria, La.
Ashland (a)	Distribution of Alluvial Deposits, Ashland, La.
Bossier City (a)	Distribution of Alluvial Deposits, Bossier City, La.

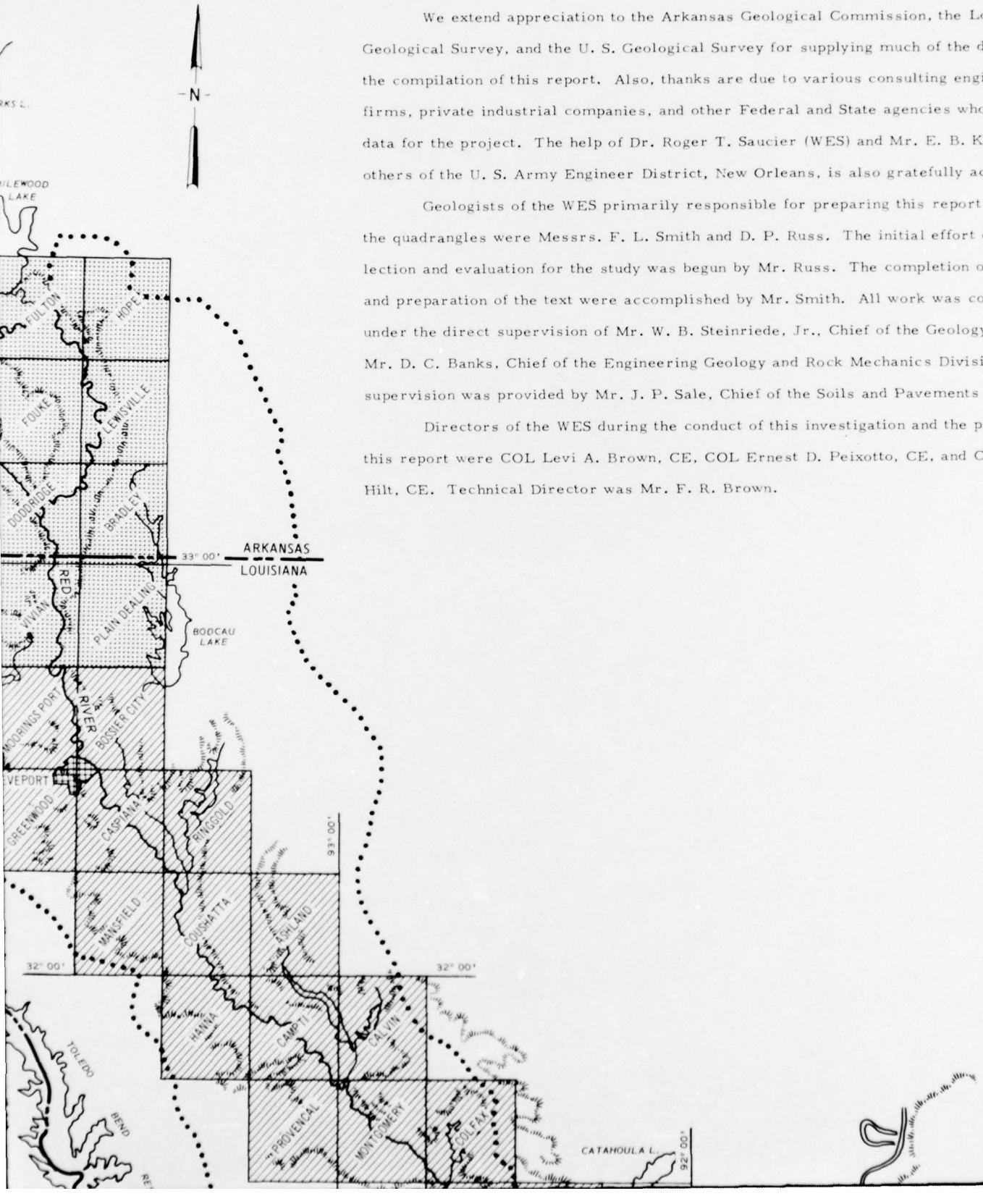
FOREWORD

The publication of this folio of maps was authorized in a letter from the Division Engineer, U. S. Army Engineer Division, Lower Mississippi Valley (LMVD), to the Director, U. S. Army Engineer Waterways Experiment Station (WES), dated 8 July 1970, subject: Status of Soils Division Projects for MRC and LMVD for FY 1970 and Request for Funds for Projects for FY 1971.

We extend appreciation to the Arkansas Geological Commission, the Louisiana Geological Survey, and the U. S. Geological Survey for supplying much of the data used in the compilation of this report. Also, thanks are due to various consulting engineering firms, private industrial companies, and other Federal and State agencies who supplied data for the project. The help of Dr. Roger T. Saucier (WES) and Mr. E. B. Kemp and others of the U. S. Army Engineer District, New Orleans, is also gratefully acknowledged.

Geologists of the WES primarily responsible for preparing this report and mapping the quadrangles were Messrs. F. L. Smith and D. P. Russ. The initial effort of data collection and evaluation for the study was begun by Mr. Russ. The completion of the report and preparation of the text were accomplished by Mr. Smith. All work was conducted under the direct supervision of Mr. W. B. Steinriede, Jr., Chief of the Geology Branch, and Mr. D. C. Banks, Chief of the Engineering Geology and Rock Mechanics Division. General supervision was provided by Mr. J. P. Sale, Chief of the Soils and Pavements Laboratory.

Directors of the WES during the conduct of this investigation and the preparation of this report were COL Levi A. Brown, CE, COL Ernest D. Peixotto, CE, and COL G. H. Hilt, CE. Technical Director was Mr. F. R. Brown.



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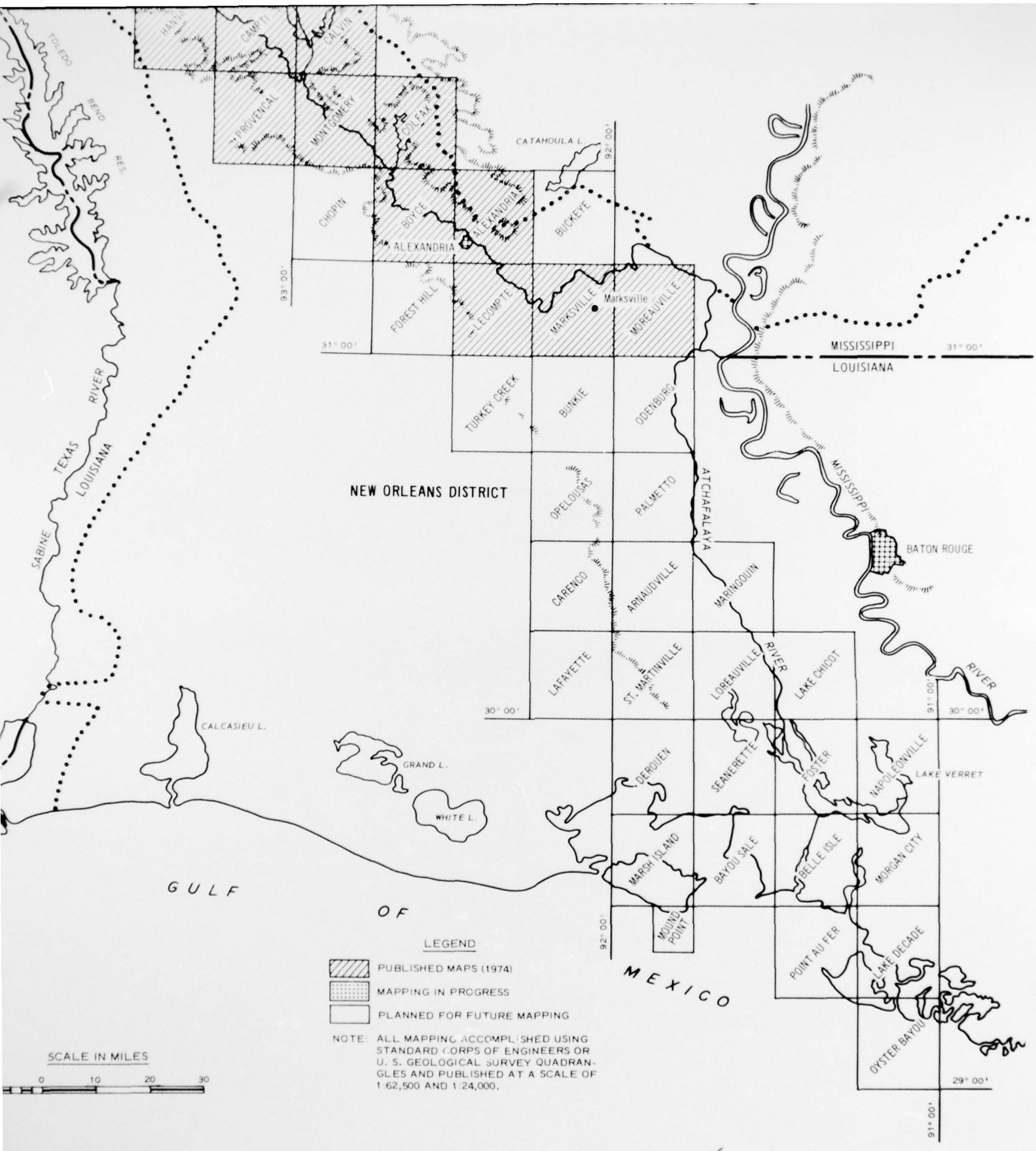
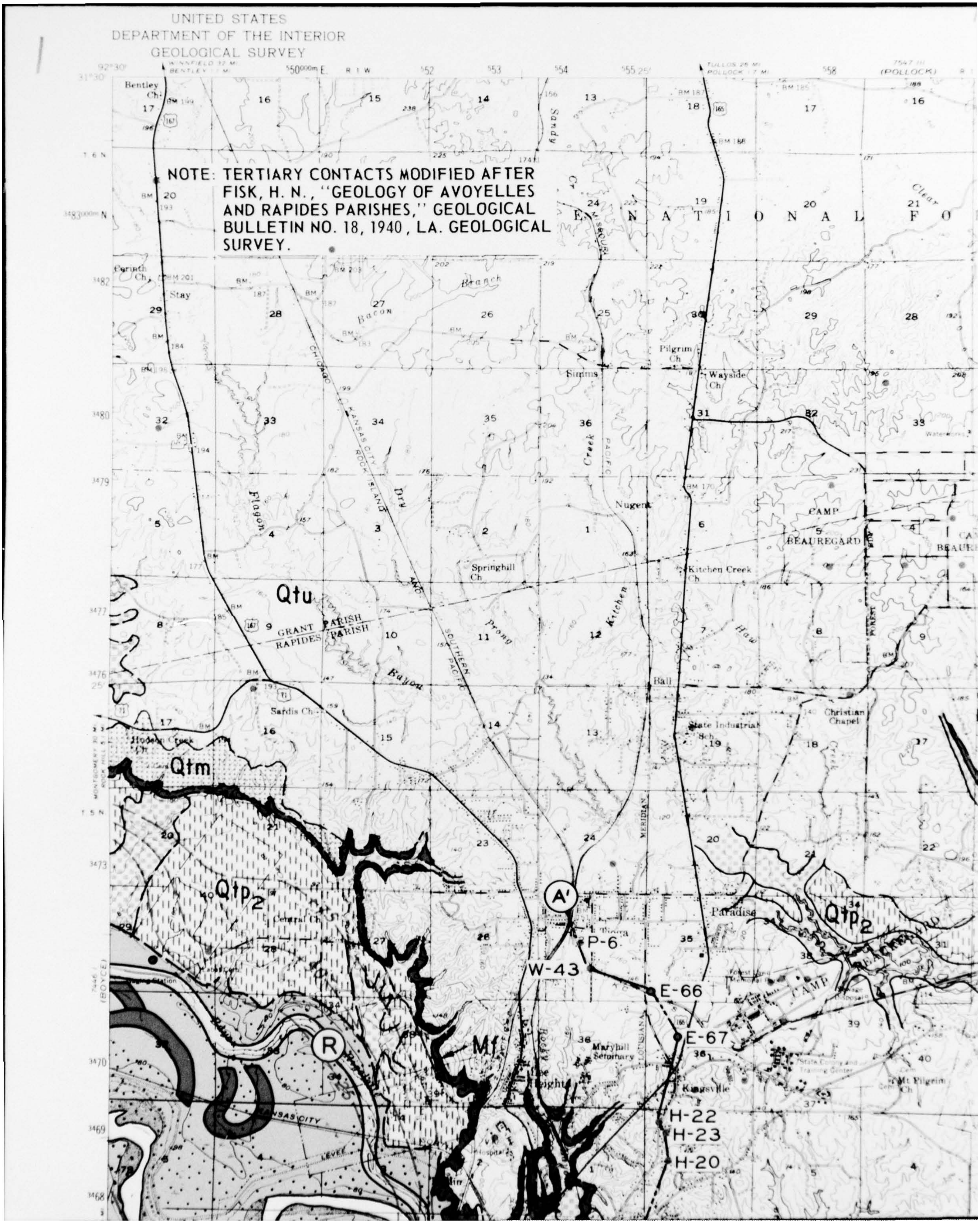
Bossier City (b)	Sections A-A' and B-B', Bossier City, La.
Boyce (a)	Distribution of Alluvial Deposits, Boyce, La.
Boyce (b)	Sections A-A' and B-B', Boyce, La.
Calvin (a)	Distribution of Alluvial Deposits, Calvin, La.
Calvin (b)	Sections A-A' and B-B', Calvin, La.
Campti (a)	Distribution of Alluvial Deposits, Campti, La.
Campti (b)	Sections A-A' and B-B', Campti, La.
Caspiana (a)	Distribution of Alluvial Deposits, Caspiana, La.
Caspiana (b)	Sections A-A', B-B', and C-C', Caspiana, La.
Caspiana (c)	
Colfax (a)	Distribution of Alluvial Deposits, Colfax, La.
Colfax (b)	Section A-A', Colfax, La.
Coushatta (a)	Distribution of Alluvial Deposits, Coushatta, La.
Coushatta (b)	Section A-A', Coushatta, La.
Greenwood (a)	Distribution of Alluvial Deposits, Greenwood, La.
Hanna (a)	Distribution of Alluvial Deposits, Hanna, La.
Hanna (b)	Sections A-A' and B-B', Hanna, La.
Lecompte (a)	Distribution of Alluvial Deposits, Lecompte, La.
Lecompte (b)	Sections A-A', A'-A'', B-B', and C-C', Lecompte, La.
Lecompte (c)	
Mansfield (a)	Distribution of Alluvial Deposits, Mansfield, La.
Mansfield (b)	Section A-A', Mansfield, La.
Marksville (a)	Distribution of Alluvial Deposits, Marksville, La.
Marksville (b)	Sections A-A' and B-B', Marksville, La.
Montgomery (a)	Distribution of Alluvial Deposits, Montgomery, La.
Montgomery (b)	Sections A-A' and B-B', Montgomery, La.
Mooringsport (a)	Distribution of Alluvial Deposits, Mooringsport, La.
Mooringsport (b)	Sections A-A' and B-B', Mooringsport, La.
Moreauville (a)	Distribution of Alluvial Deposits, Moreauville, La.
Moreauville (b)	Sections A-A' and B-B', Moreauville, La.
Provencal (a)	Distribution of Alluvial Deposits, Provencal, La.
Provencal (b)	Sections A-A' and B-B', Provencal, La.
Ringgold (a)	Distribution of Alluvial Deposits, Ringgold, La.
Ringgold (b)	Section A-A', Ringgold, La.

Fig. 1. Quadrangle coverage o



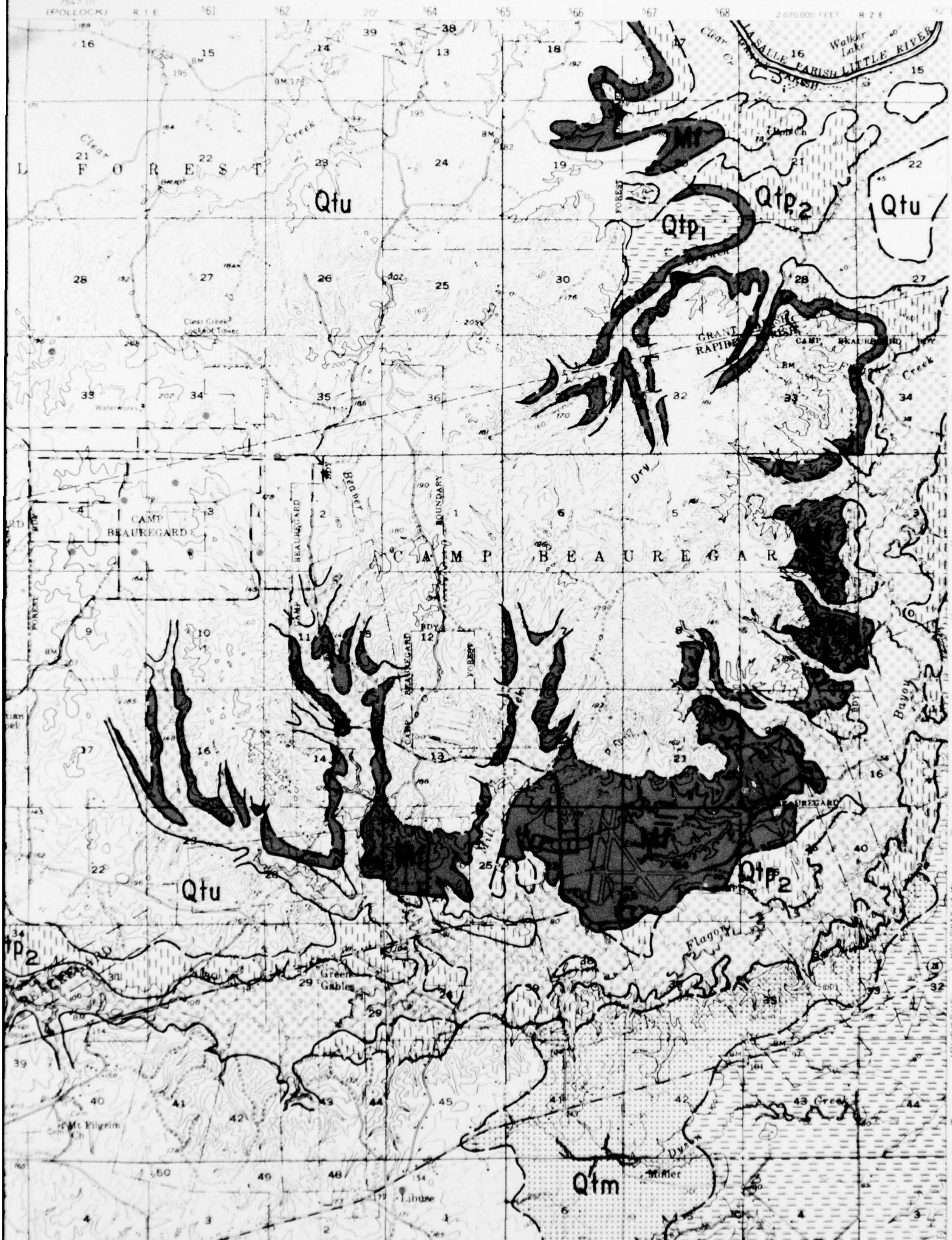
erage of the Red River Valley--Atchafalaya Basin area

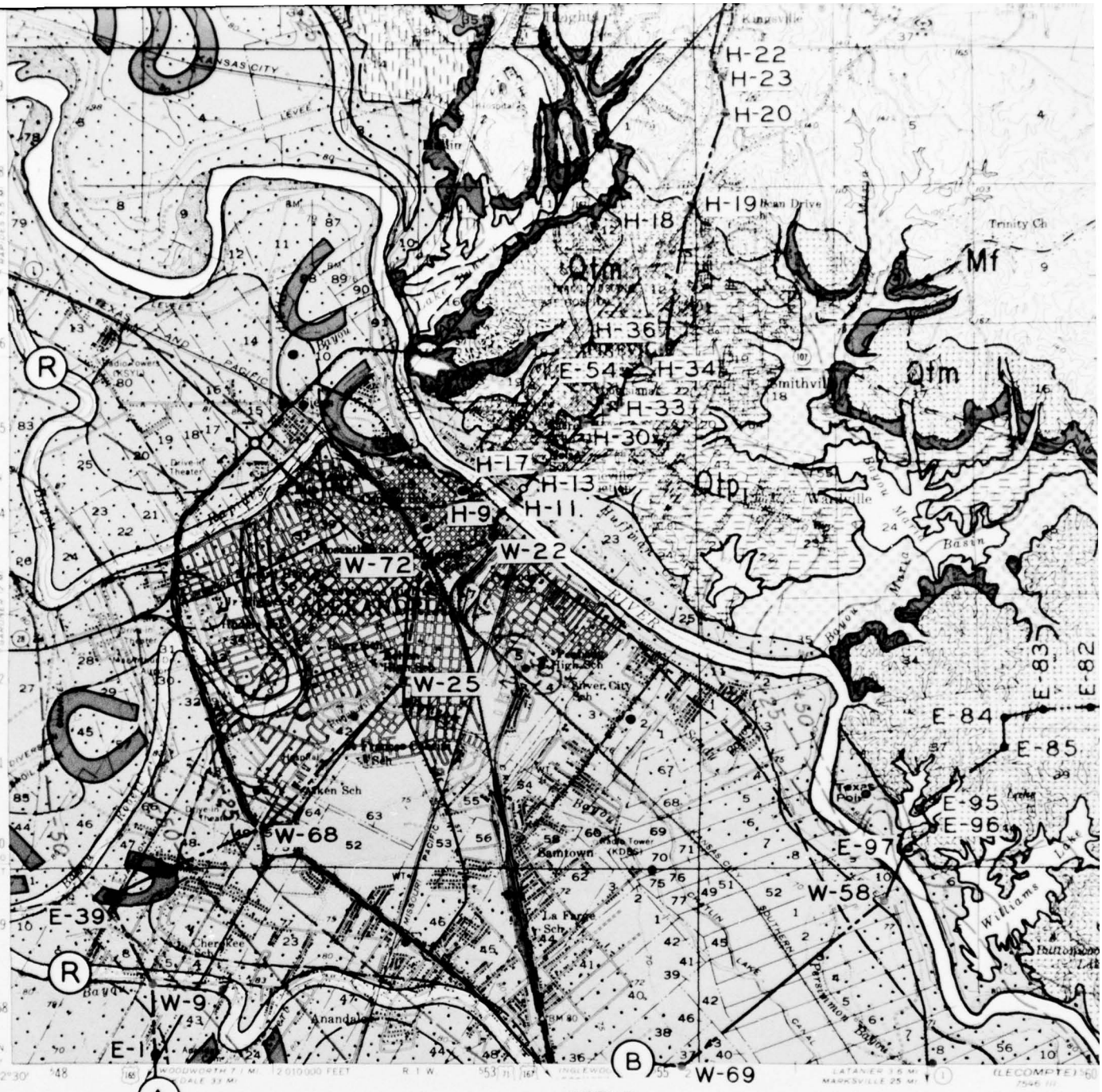
4


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
(POLLOCK)
NOTE: TERTIARY CONTACTS MODIFIED AFTER FISK, H. N., "GEOLOGY OF AVOYELLES AND RAPIDES PARISHES," GEOLOGICAL BULLETIN NO. 18, 1940, LA. GEOLOGICAL SURVEY.
Qtu
Qtm
Qtp2
Mt
GRANT PARISH
RAPIDES PARISH
A'
R
P-6
W-43
E-66
E-67
H-22
H-23
H-20
Bentley Ch
Corinth Ch
Stay
Simms
Pilgrim Ch
Wayside Ch
Nugent
CAMP BEAUREGARD
Springhill Ch
Kitchen Creek Ch
Ball
Sardis Ch
Christian Chapel
State Industrial Sch
Paradise
Tioga
Maryhill Seminary
Kingsville
Mt Pilgrim Ch
NATIONAL FO

2

ALEXANDRIA QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)





LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL CREEKS

PLEISTOCENE

- Qtm — PRAIRIE TERRACE-UPPER SURFACE
- Qtp — PRAIRIE TERRACE-LOWER SURFACE
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

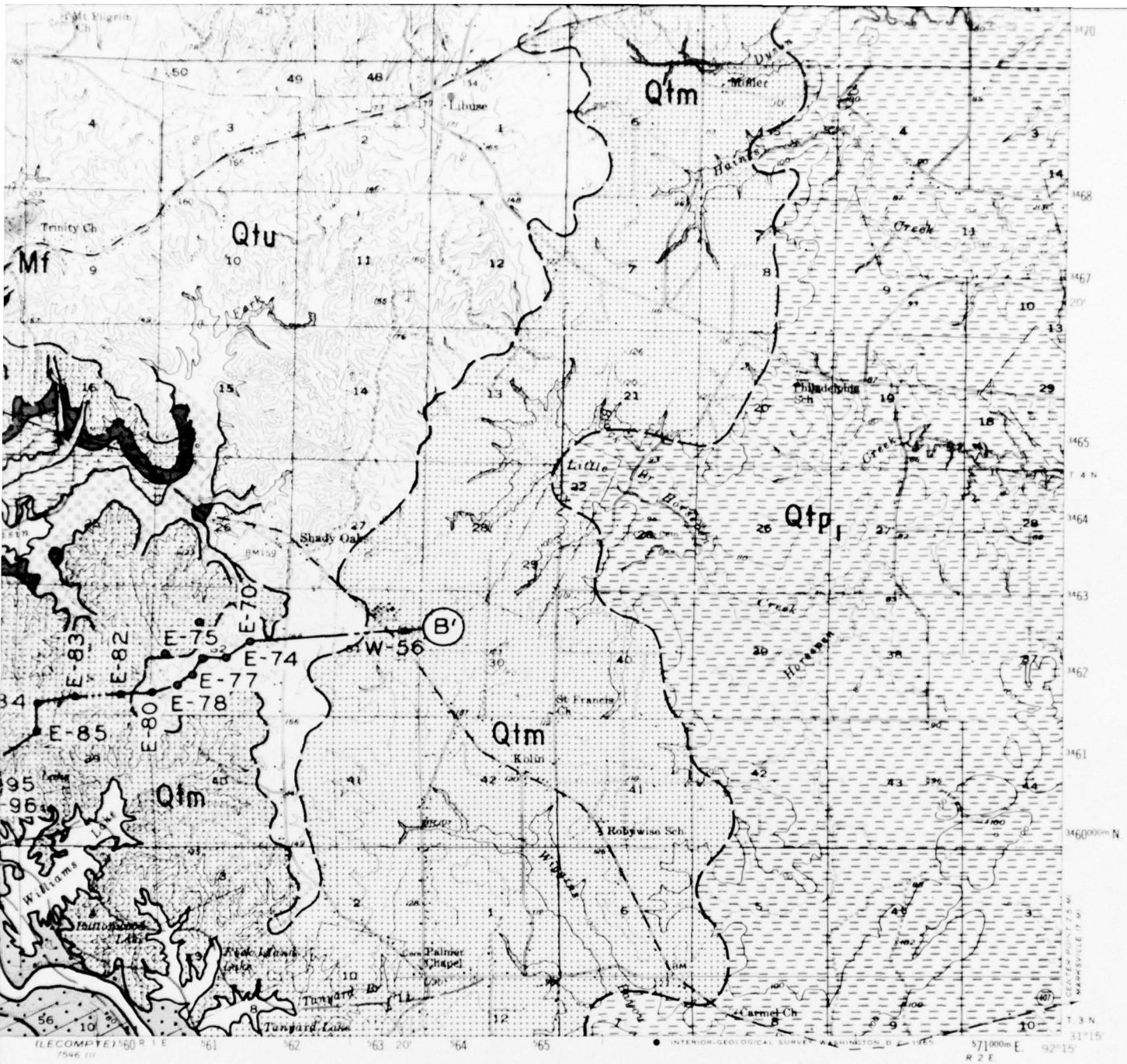
TERTIARY

MIOCENE

- FLEMING FORMATION

(R) RED RIVER

- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED COURSE REWORKED BY SUBSEQUENT MEANDERING OF A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTI USED TO CONTOUR BURIED TERTIARY SURF
- CLASS I BORING (LOGGED BY SOILS SCIENTI NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SC USED TO CONTOUR BURIED TERTIARY SURF
- O CLASS II BORING (NOT LOGGED BY SOILS SC NOT REACHING TERTIARY



SCALE 1:62500

4 MILES

21000 FEET

5 KILOMETERS

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 5-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

ABANDONED
UBSEQUENT
AM

TERTIARY

D BY SOILS SCIENTIST)
ED TERTIARY SURFACE

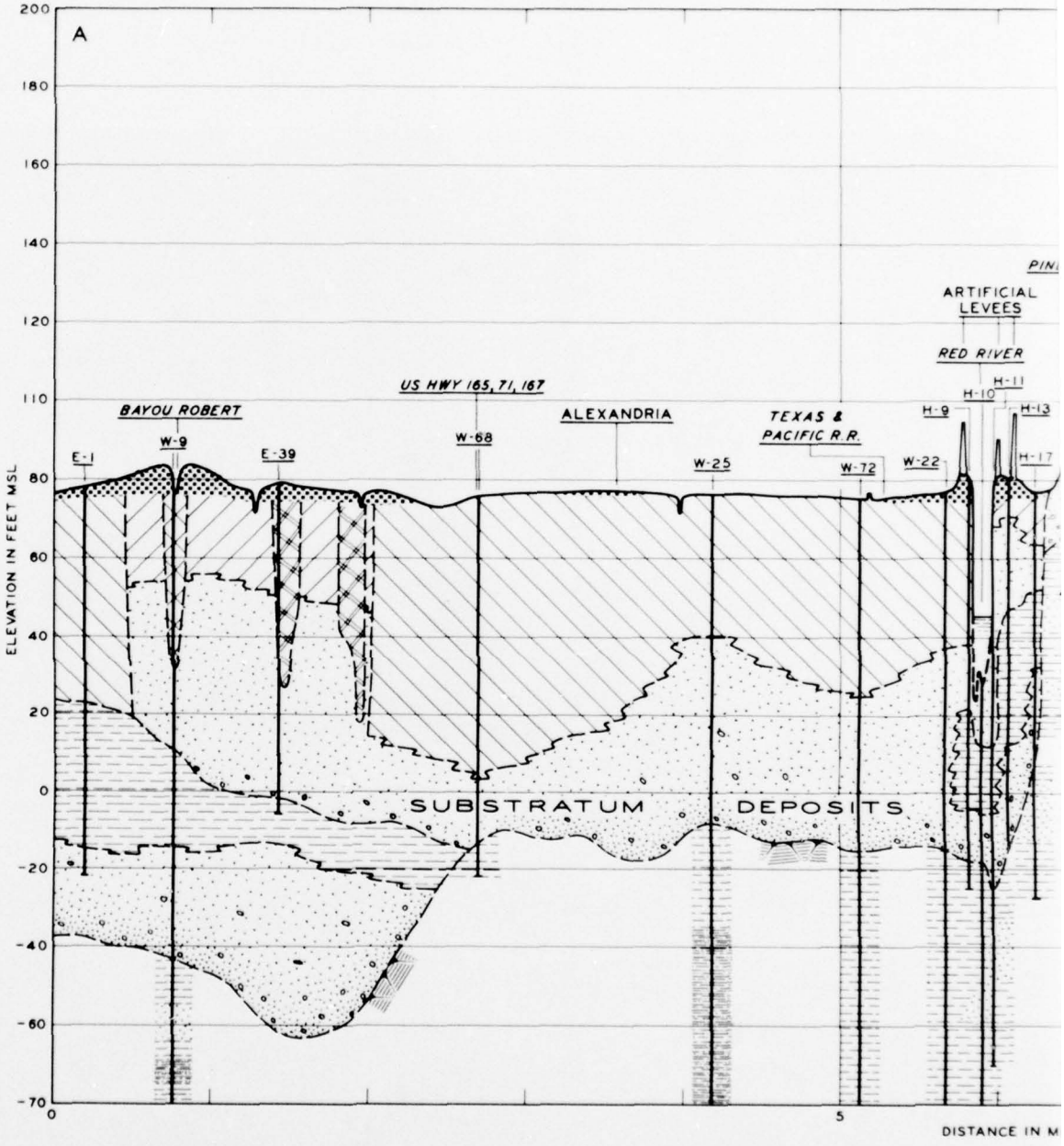
D BY SOILS SCIENTIST)
Y

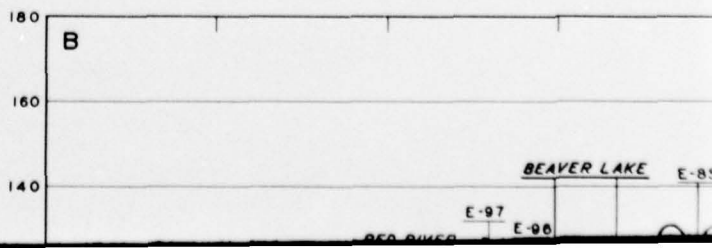
OGGED BY SOILS SCIENTIST)
ED TERTIARY SURFACE

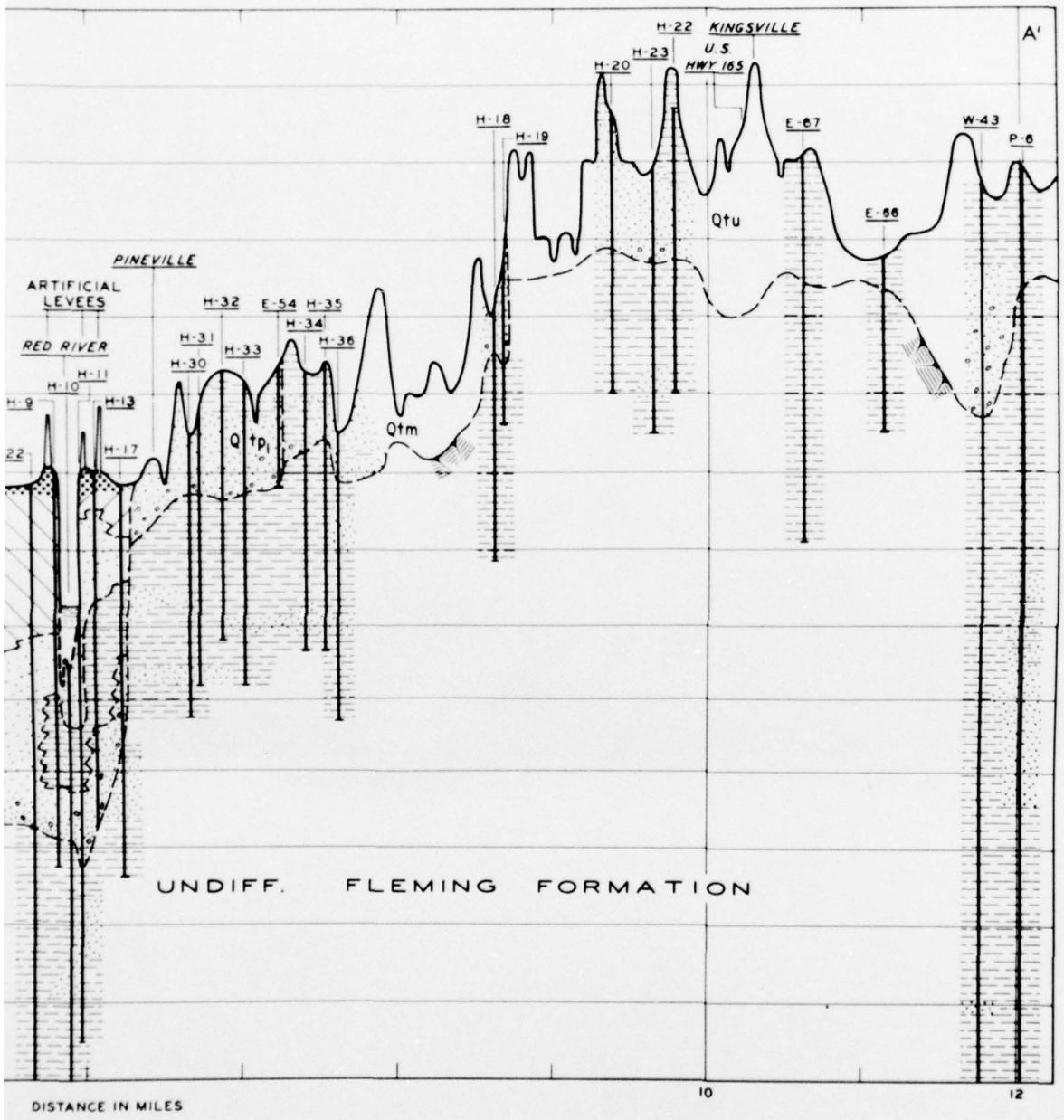
OGGED BY SOILS SCIENTIST)
Y

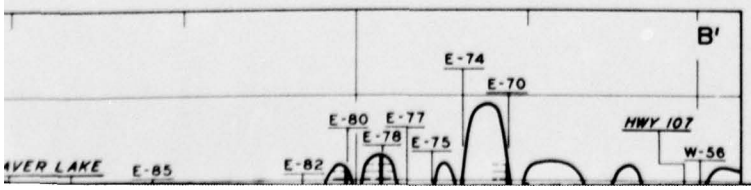
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
ALEXANDRIA, LA.

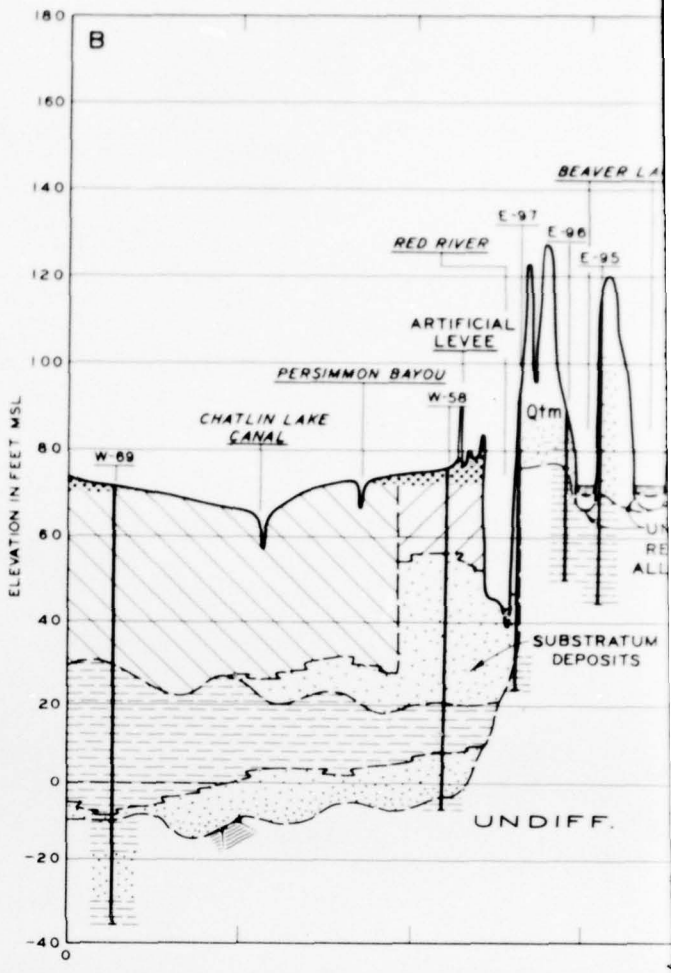
4


A
200
180
160
140
120
110
80
60
40
20
0
-20
-40
-60
-70
ELEVATION IN FEET MSL
BAYOU ROBERT
US HWY 165, 71, 167
ALEXANDRIA
TEXAS & PACIFIC R.R.
ARTIFICIAL LEVEES
RED RIVER
E-1
W-9
E-39
W-68
W-25
W-72
W-22
H-9
H-10
H-11
H-13
H-17
SUBSTRATUM DEPOSITS
0
5
DISTANCE IN M


B
180
160
140
BEAVER LAKE
E-97
E-98


A'
H-22
KINGSVILLE
U.S.
HWY 165
H-23
H-20
H-18
H-19
E-67
W-43
P-6
Qtu
E-66
PINEVILLE
ARTIFICIAL
LEVEES
RED RIVER
H-32
E-54
H-35
H-34
H-31
H-33
H-36
H-30
H-11
H-10
H-9
H-13
H-17
Qtp1
Qtm
UNDIFF. FLEMING FORMATION
10
12
DISTANCE IN MILES


B'
E-74
E-70
E-80
E-77
E-78
E-75
HWY 107
W-56
E-82
E-85



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

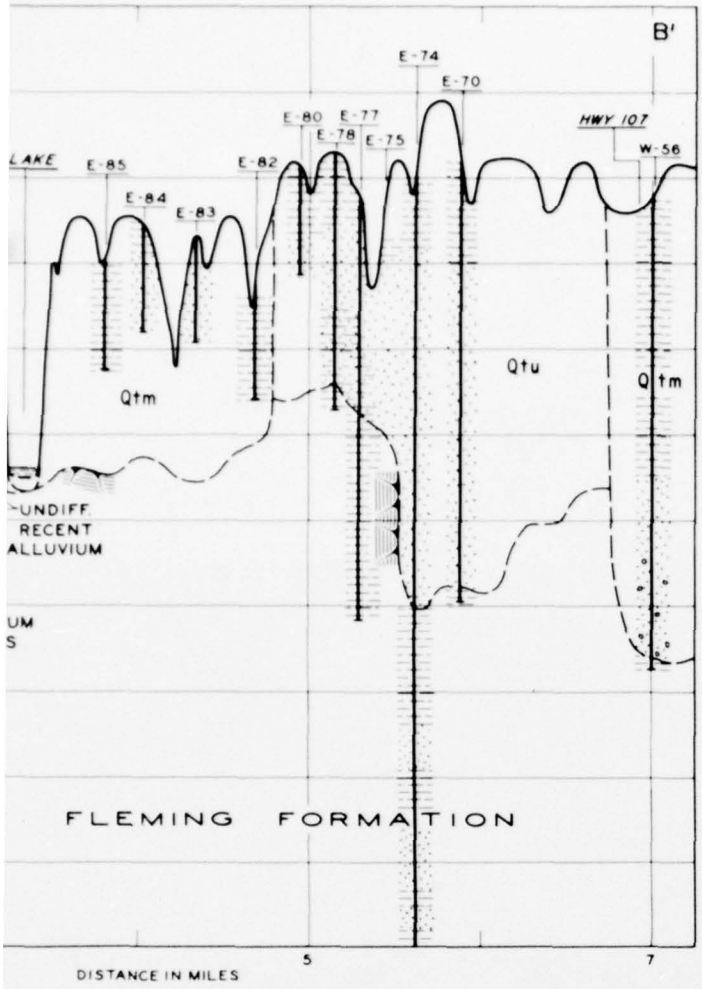
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SANDY CLAY
- SHALE
- SAND AND GRAVEL

MAPPING SYMBOLS

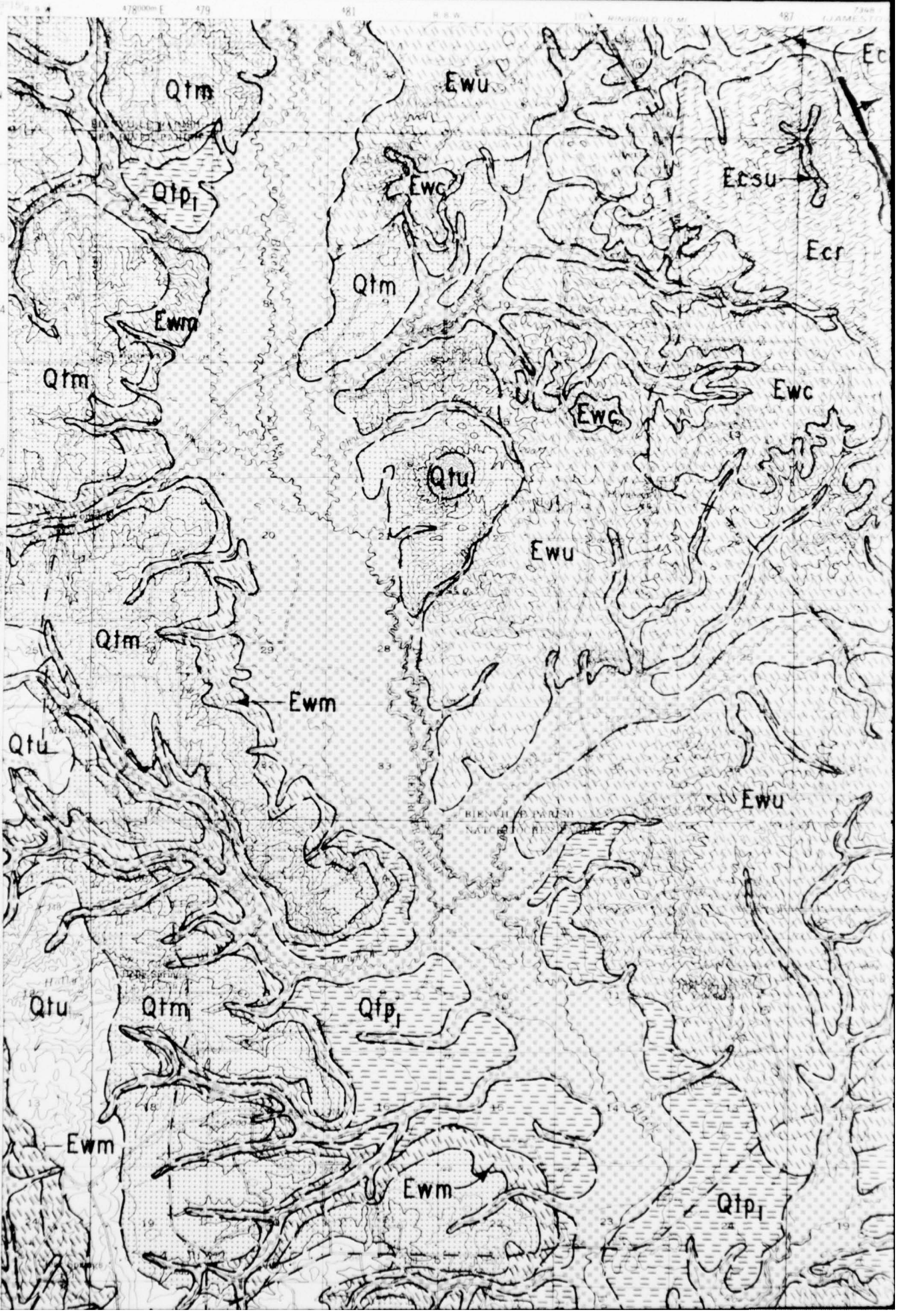
- Qtp$_u$ PRAIRIE TERRACE-UPPER SURFACE
- Qtm MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE

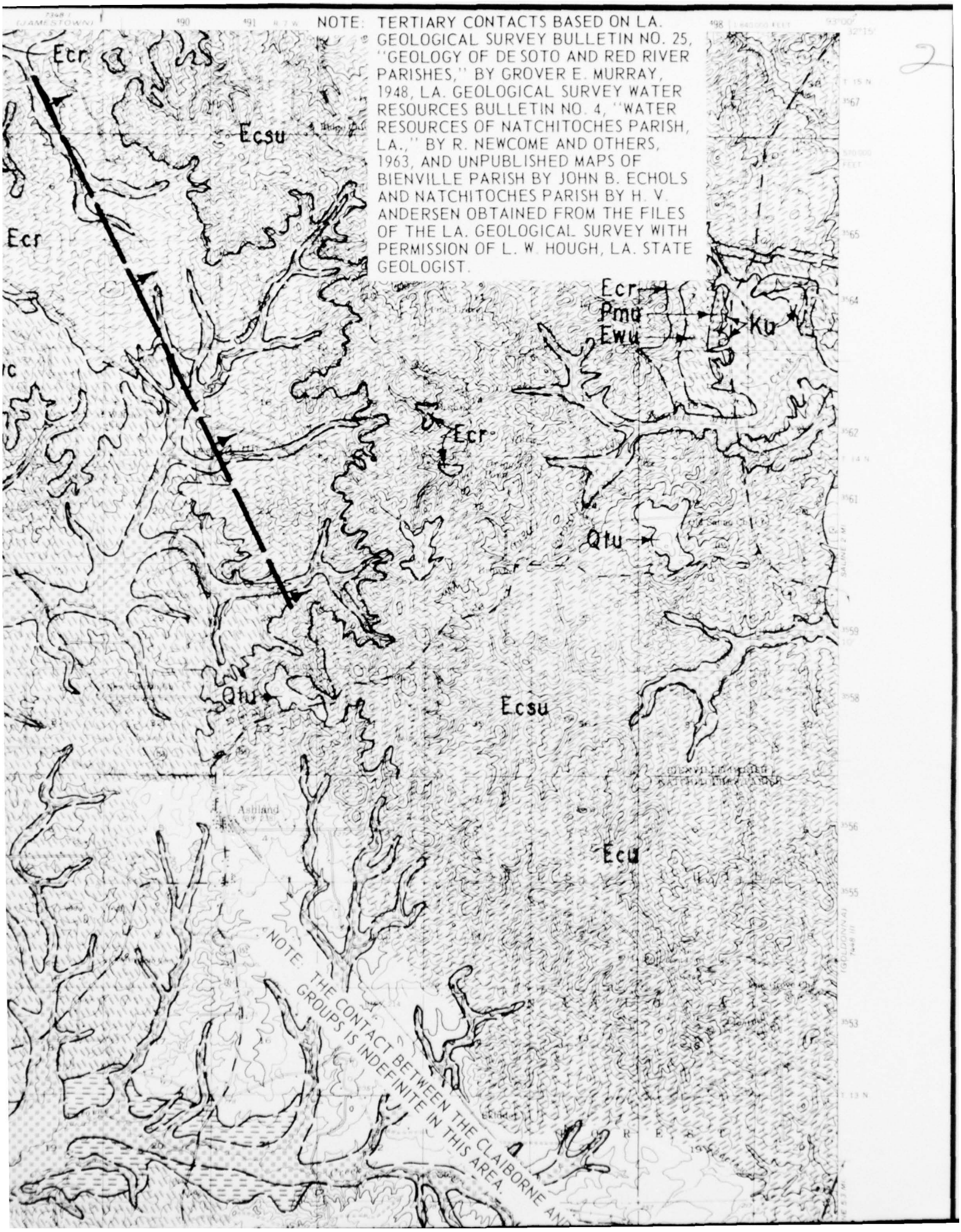


GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

SECTIONS A-A' AND B-B'

ALEXANDRIA, LA.


Qtm
Qtp1
Ewm
Qtm
Qtm
Ewm
Qtu
Qtu
Qtm1
Qtp1
Ewm
Ewm
Qtp1
Ewu
Ewc
Qtm
Qtu
Ewu
Ewu
Ecsu
Ecr
Ewc
Ewc
Ec


NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 25, "GEOLOGY OF DE SOTO AND RED RIVER PARISHES," BY GROVER E. MURRAY, 1948, LA. GEOLOGICAL SURVEY WATER RESOURCES BULLETIN NO. 4, "WATER RESOURCES OF NATCHITOCHES PARISH, LA.," BY R. NEWCOME AND OTHERS, 1963, AND UNPUBLISHED MAPS OF BIENVILLE PARISH BY JOHN B. ECHOLS AND NATCHITOCHES PARISH BY H. V. ANDERSEN OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
Ecr
Ecsu
Ecr
Ecr
Pmu
Ewu
Ku
Ecr
Qtu
Qtu
Ecsu
Ecu
Ashland
NOTE: THE CONTACT BETWEEN THE CLAIBORNE AND GROUPS IS INDEFINITE IN THIS AREA.

LEGEND

QUATERNARY

RECENT

- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp — PRAIRIE TERRACE-UPPER SURFACE
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

TERTIARY

EOCENE

- Ecu — CLAIBORNE GROUP UNDIFFERENTIATED
- Ecsu — SPARTA FORMATION (UNDIFFERENTIATED)
- Ecr — CANE RIVER FORMATION

EOCENE–PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED
- Ewc — CARRIZO FORMATION
- Ewm — MARTHAVILLE FORMATION
- PEwh — HALL SUMMIT FORMATION (CONSIDERED MIDWAY BY MURRAY IN RED RIVER PARISH)
- Pwl — LOGANSPORT FORMATION (AFTER MURRAY–INCLUDES LIME HILL, COW BAYOU, AND DOLET HILLS MEMBERS, IN RED RIVER PARISH)

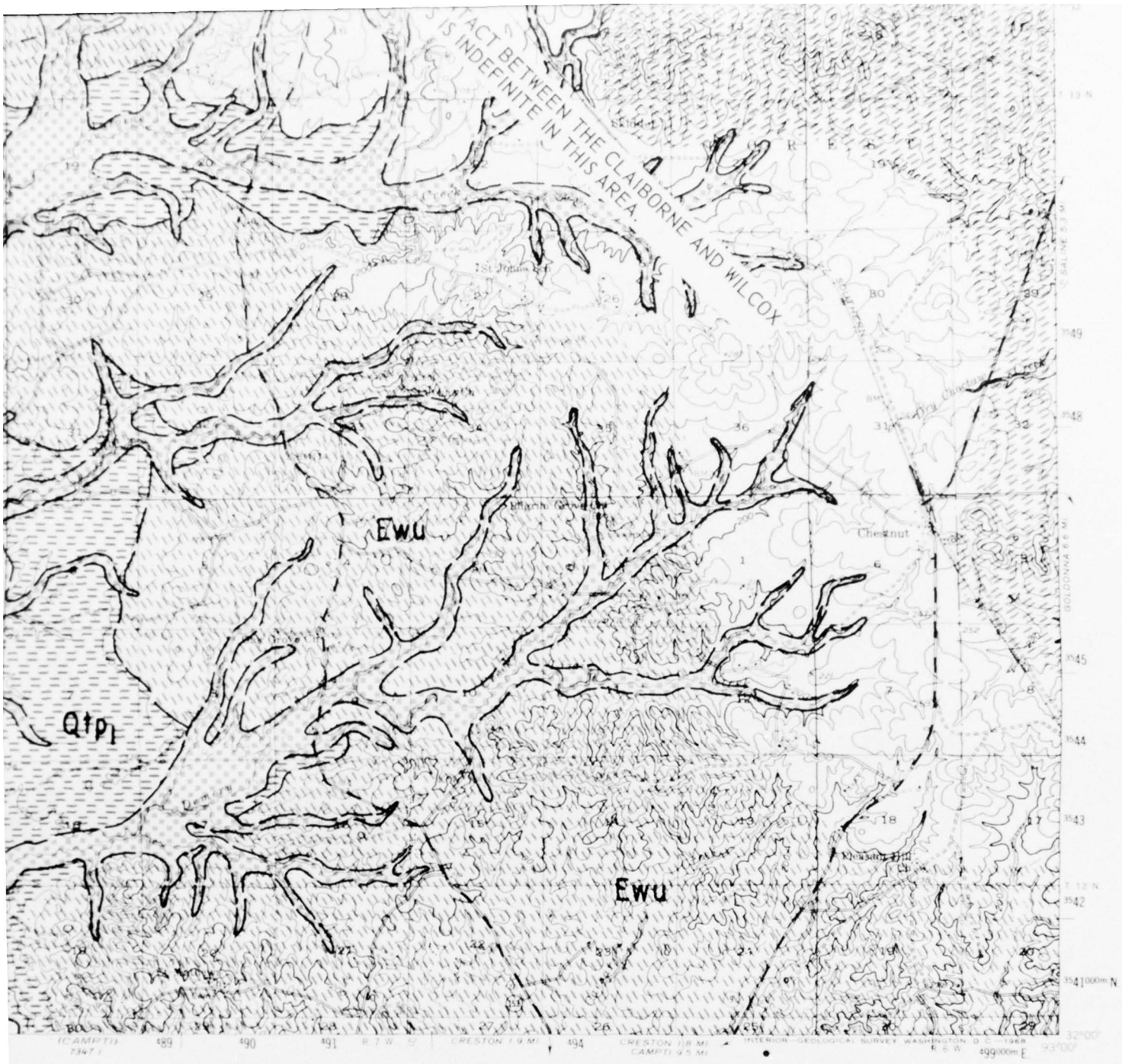
PALEOCENE

- Pmu — MIDWAY GROUP UNDIFFERENTIATED

CRETACEOUS

- Ku — UPPER CRETACEOUS UNDIFFERENTIATED

- INDEFINITE CONTACT
- CONTACT

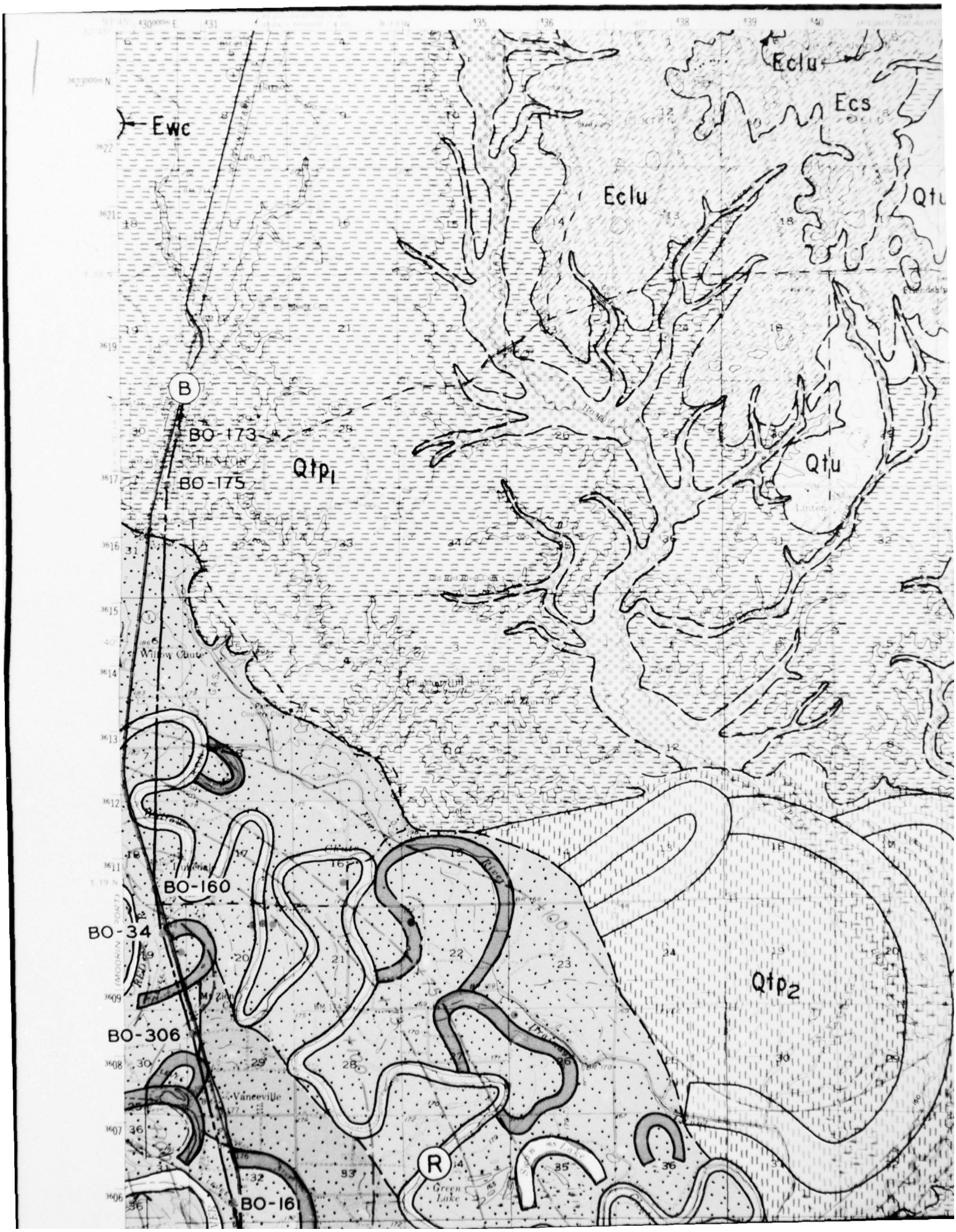


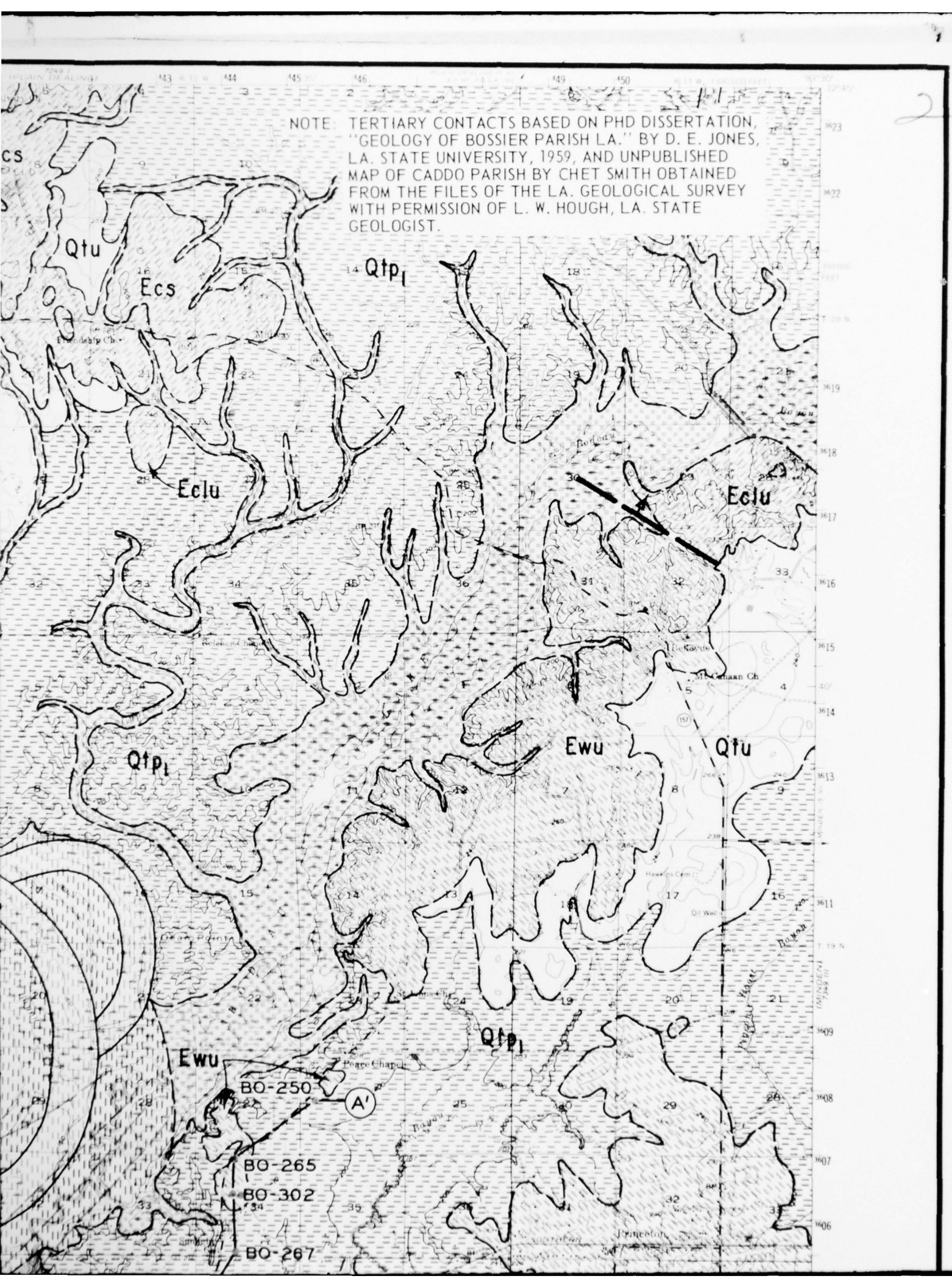
UNDIFFER-

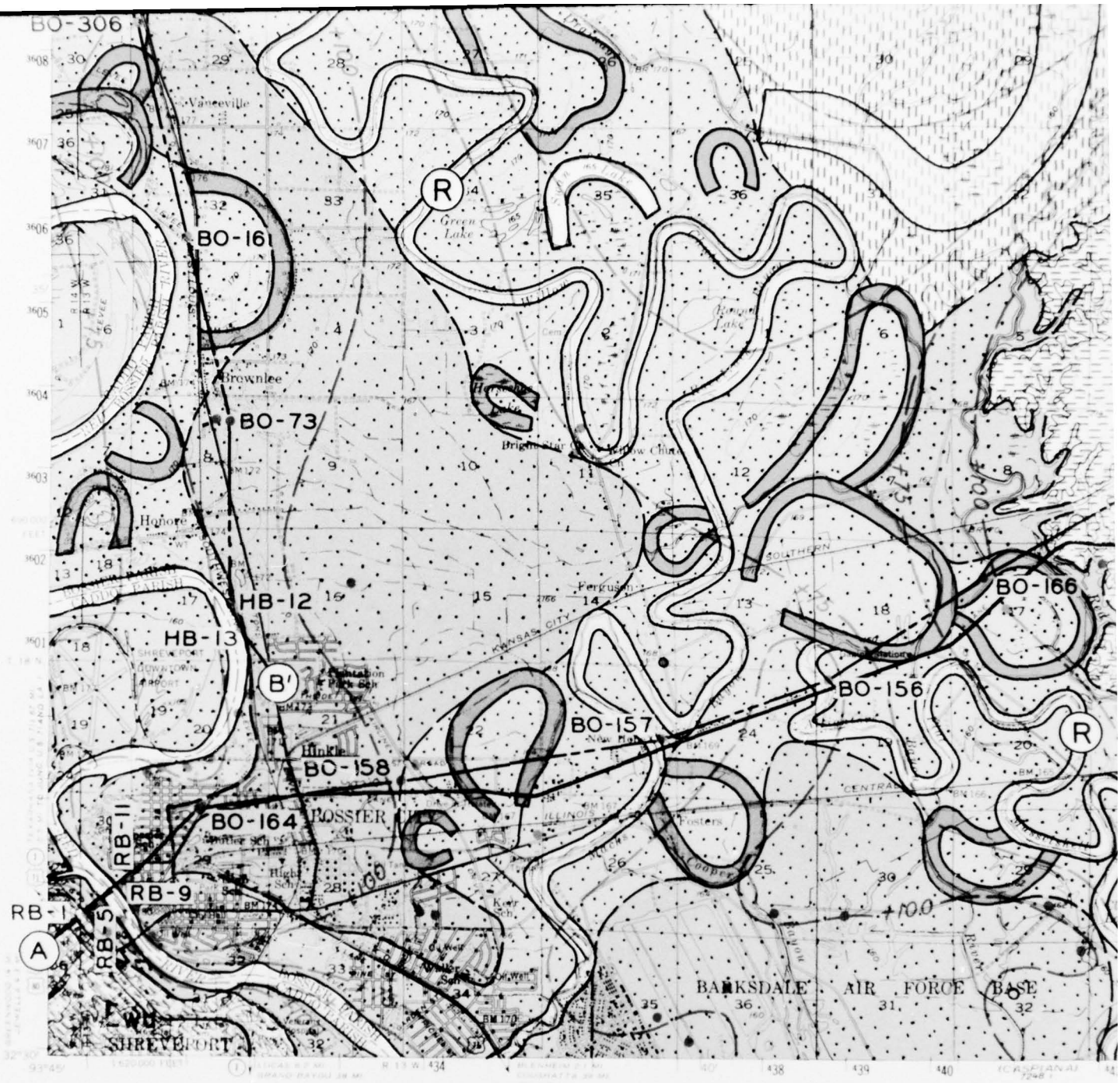
GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

DISTRIBUTION OF ALLUVIAL DEPOSITS

ASHLAND, LA.


Ewc
Eclu
Ecs
Eclu
Qtu
Qtu
B
BO-173
BO-175
Qtp1
BO-160
BO-34
BO-306
BO-161
Qtp2
R
Willow Creek
Vaneeville
Green Lake


NOTE: TERTIARY CONTACTS BASED ON PHD DISSERTATION, "GEOLOGY OF BOSSIER PARISH LA." BY D. E. JONES, LA. STATE UNIVERSITY, 1959, AND UNPUBLISHED MAP OF CADDO PARISH BY CHET SMITH OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
Qtu
Ecs
Qtp$_l$
Eclu
Ewu
BO-250
A'
BO-265
BO-302
BO-267



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtpu — PRAIRIE TERRACE-UPPER SURFACE
- Qtpl — PRAIRIE TERRACE-LOWER SURFACE
- ABANDONED CHANNEL
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

TERTIARY

EOCENE

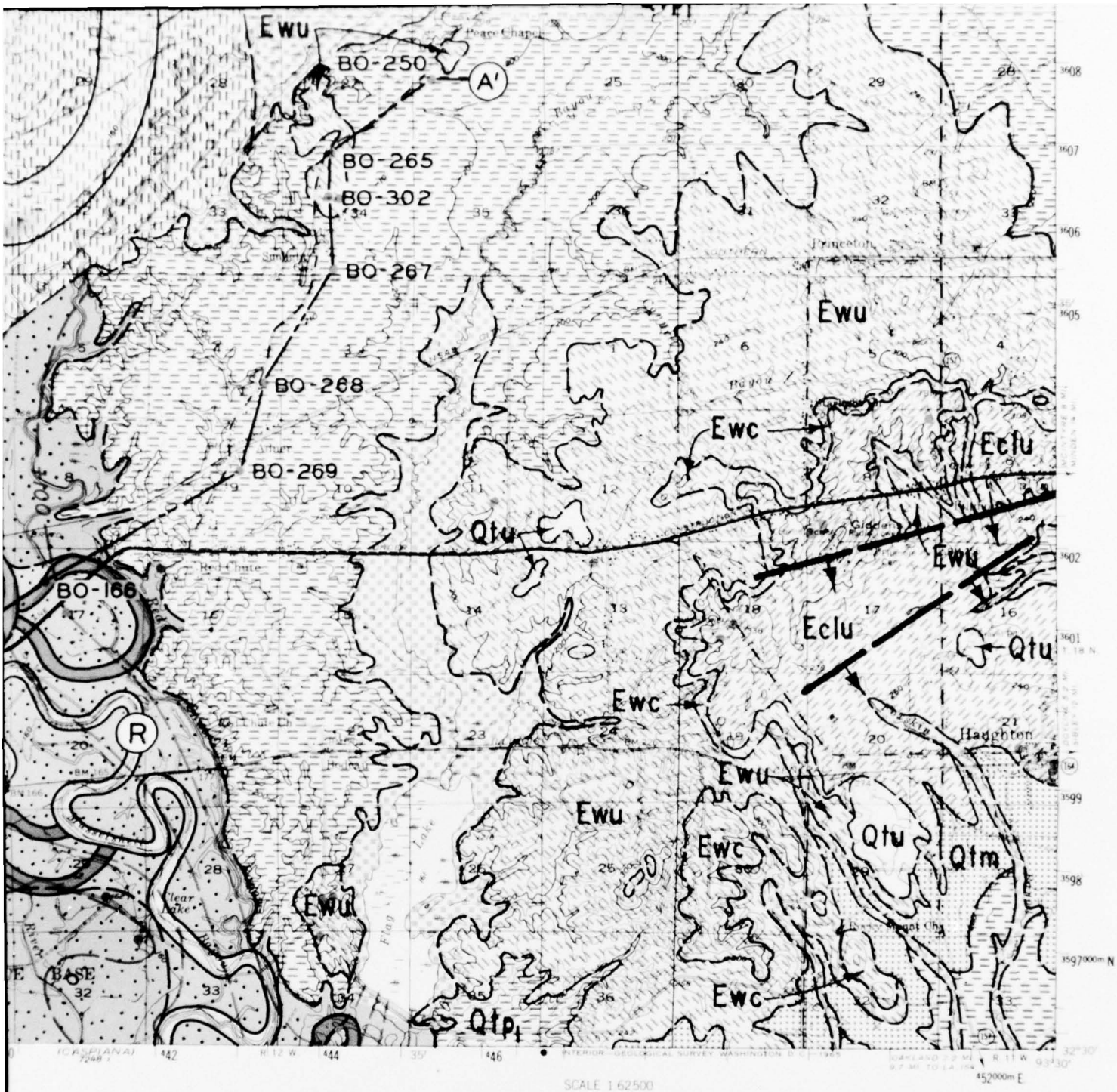
- Eclu — LOWER CLAIBORNE GROUP UNDIFFERENTIATED
- Ecs — SPARTA FORMATION

EOCENE–PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED
- Ewc — CARRIZO FORMATION

- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY

- (R) RED RIVER
- INDEFINITE CONTACT
- CONTACT



4

FFERENTIATED

ED

SCIENTIST)
RY SURFACE

SCIENTIST)

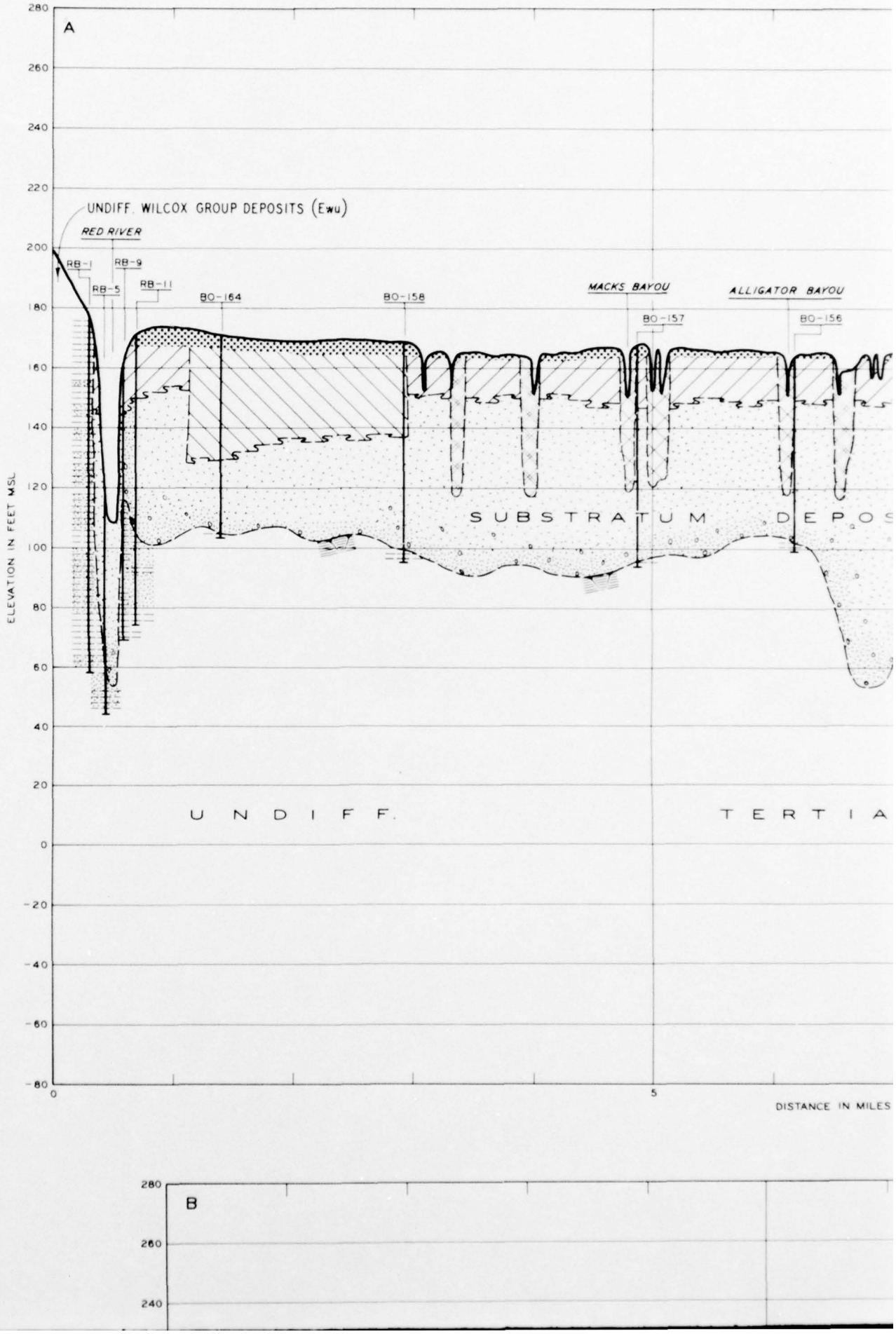
SOILS SCIENTIST)
RY SURFACE

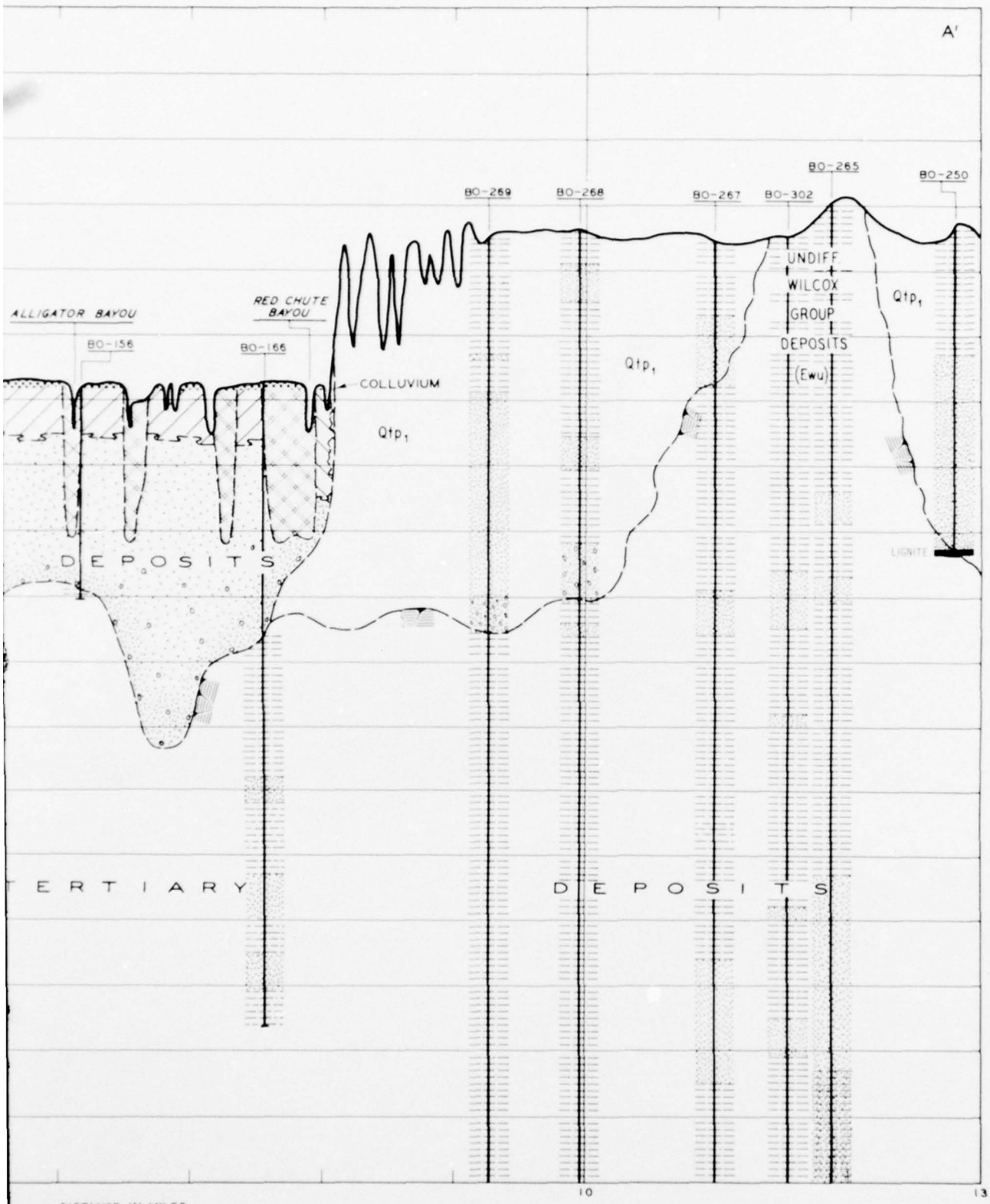
SOILS SCIENTIST)

GEOLOGICAL INVESTIGATION
LOWER RED RIVER–ATCHAFALAYA BASIN AREA

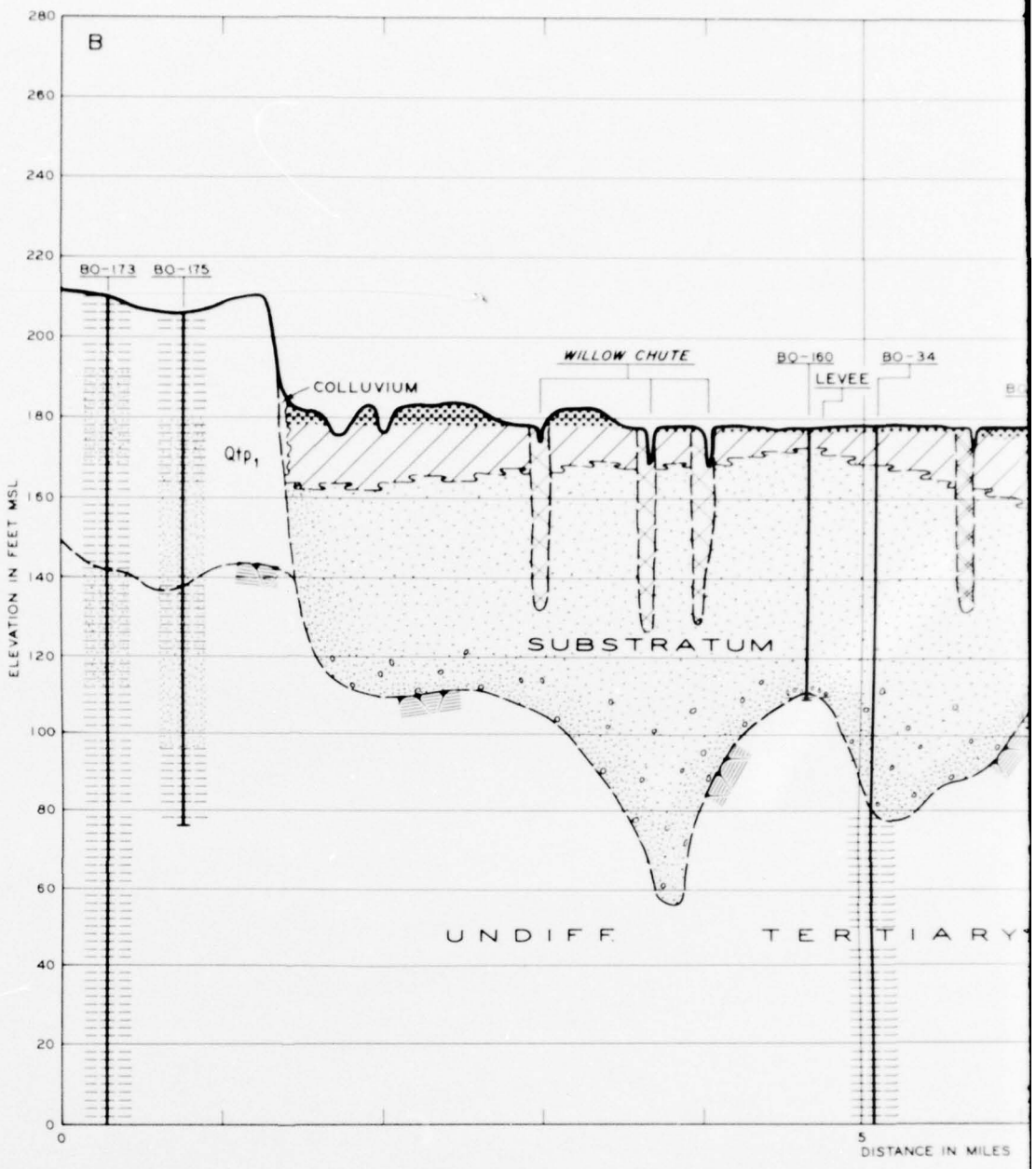
DISTRIBUTION OF ALLUVIAL DEPOSITS

BOSSIER CITY, LA.


A
UNDIFF. WILCOX GROUP DEPOSITS (Ewu)
RED RIVER
RB-1
RB-5
RB-9
RB-11
BO-164
BO-158
MACKS BAYOU
BO-157
ALLIGATOR BAYOU
BO-156
SUBSTRATUM DEPOS
UNDIFF.
TERTIA
ELEVATION IN FEET MSL
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
-80
0
5
DISTANCE IN MILES
B
280
260
240


A'
BO-265
BO-250
BO-269
BO-268
BO-267
BO-302
UNDIFF
WILCOX
GROUP
DEPOSITS
(Ewu)
Qtp1
ALLIGATOR BAYOU
RED CHUTE BAYOU
BO-156
BO-166
COLLUVIUM
Qtp1
Qtp1
DEPOSITS
LIGNITE
TERTIARY
DEPOSITS
10
13
DISTANCE IN MILES

B'



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

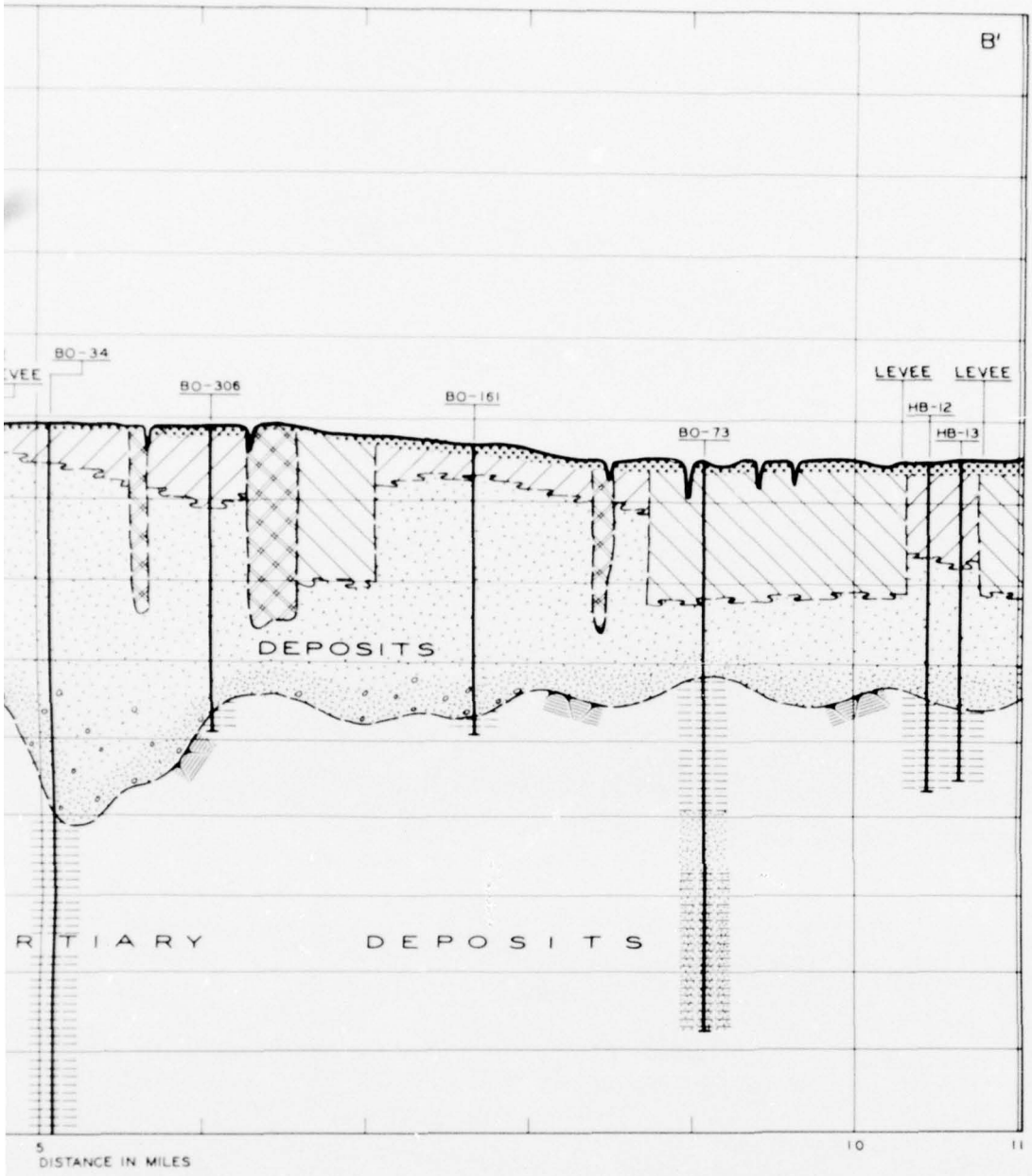
LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

- Qtp1 — PRAIRIE TERRACE-UPPER SURFACE
- Ewi — UNDIFFERENTIATED WILCOX GROUP DEPOSITS

3

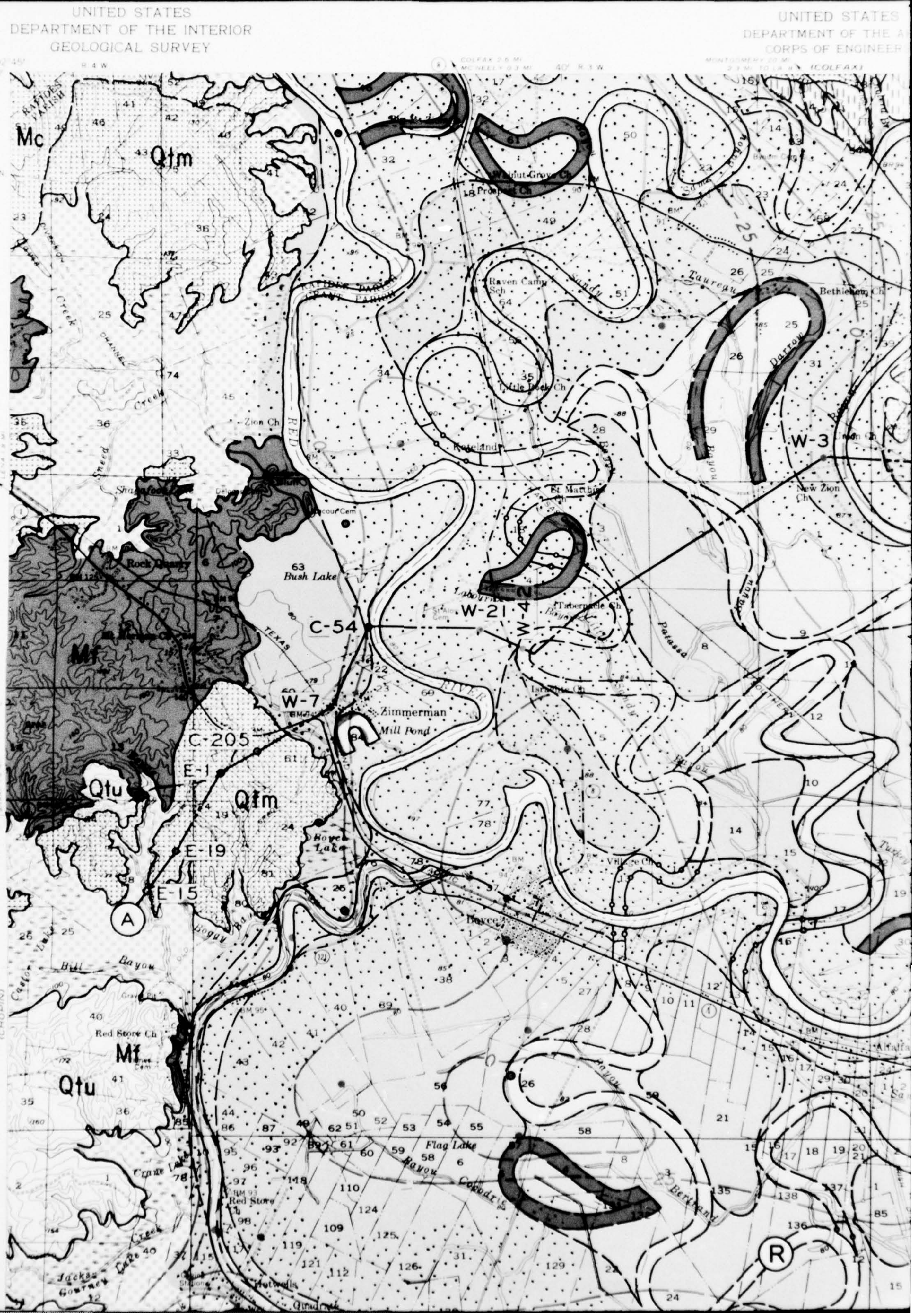


GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

SECTIONS A-A' AND B-B'

BOSIER CITY, LA.

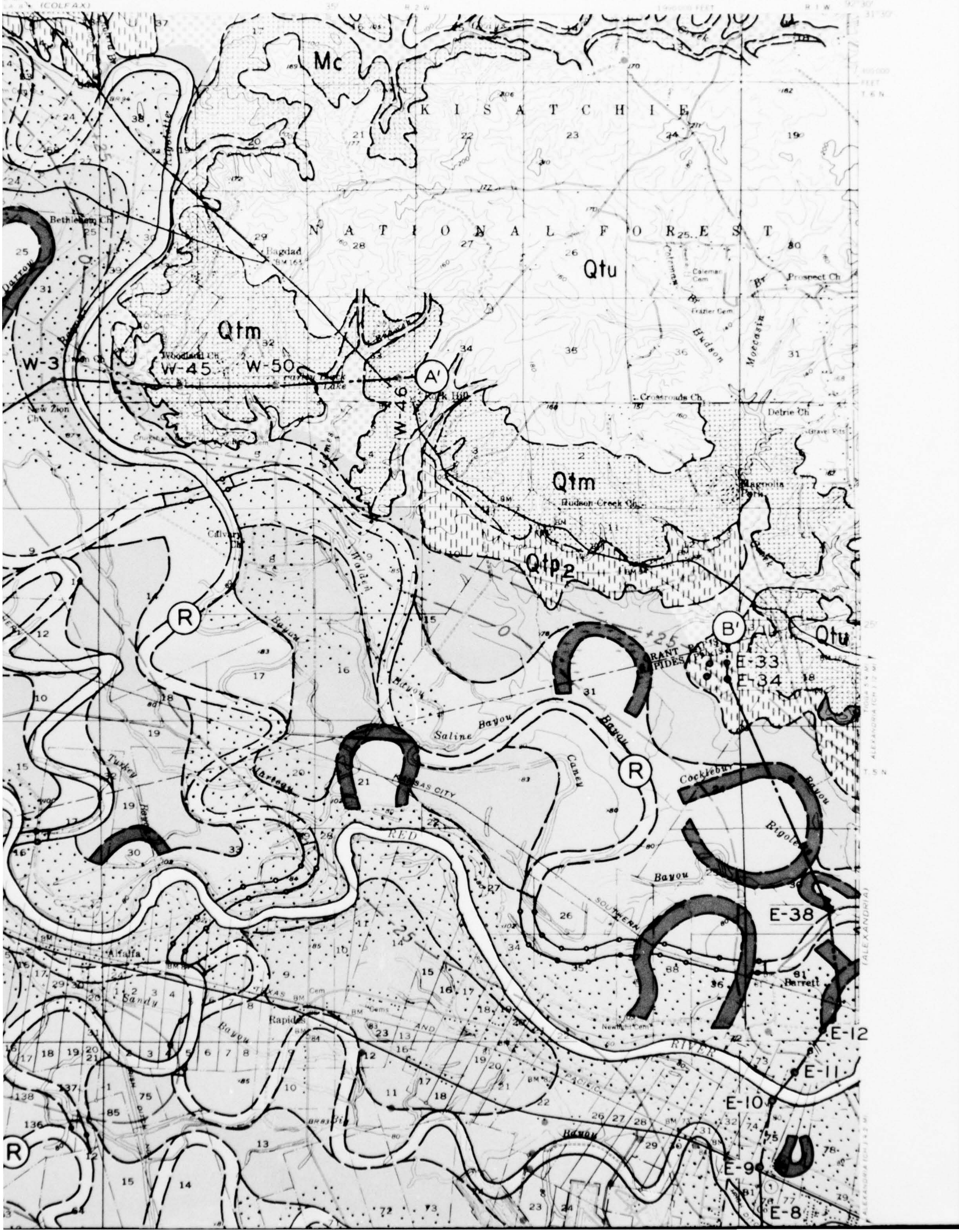
4

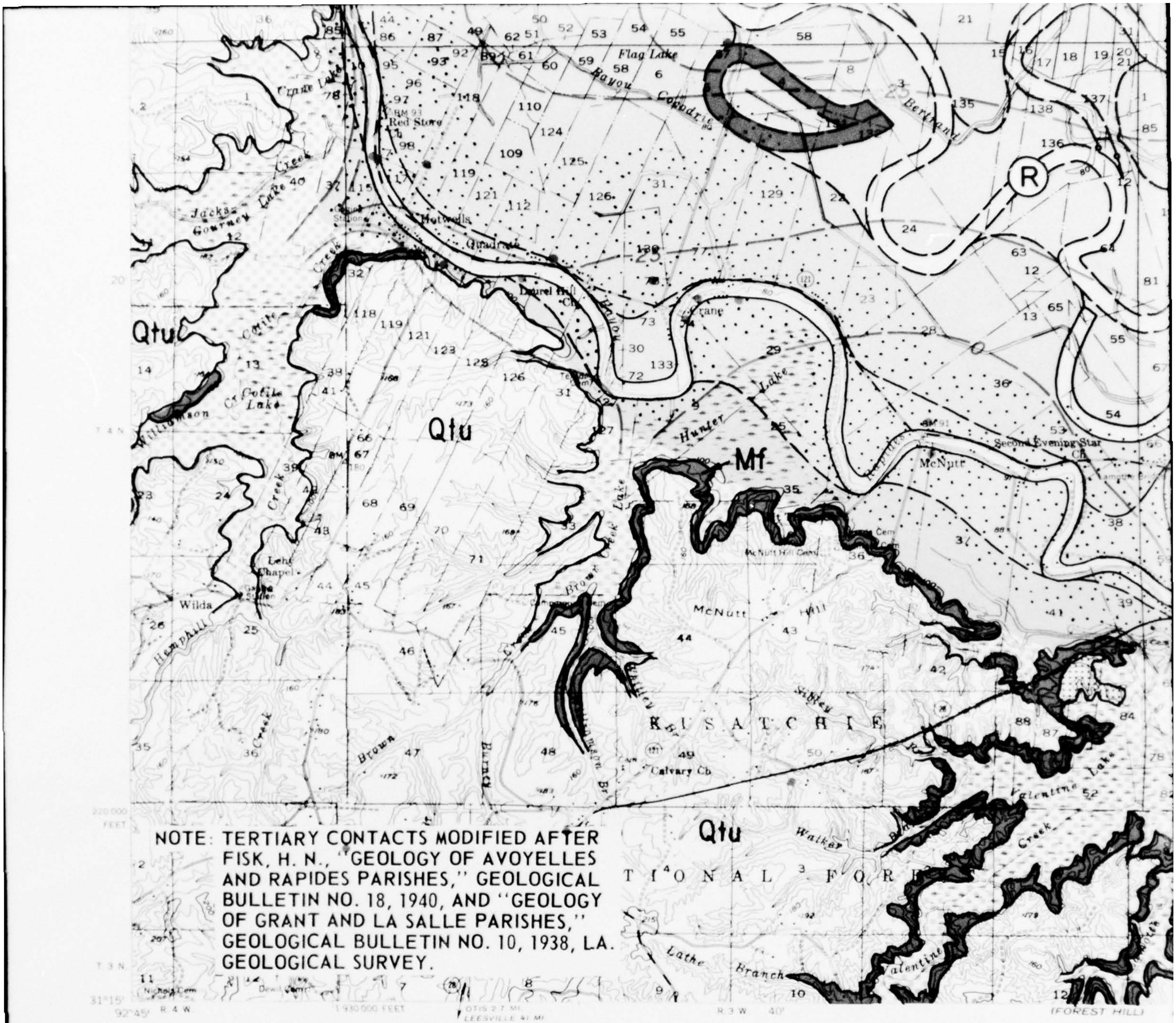

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
CORPS OF ENGINEER
Mc
Qtm
Mf
Qtu
Qfm
C-54
C-205
W-7
W-21
W-3
E-1
E-19
E-15
A
R
Bush Lake
Zimmerman
Mill Pond
Rock Quarry
Boyce
Flag Lake
Red Store
Red Store Ch
Bethlehem Ch
New Zion Ch
Raven Camp Sch
St Matthias
Tabernacle Ch
Village Ch
Hotwells
RED
RIVER
TEXAS

UNITED STATES
ARTMENT OF THE ARMY
ORPS OF ENGINEERS

BOYCE QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)

2





LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL CREEKS

PLEISTOCENE

- Qpl — PRAIRIE TERRACE-LOWER SURFACE
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

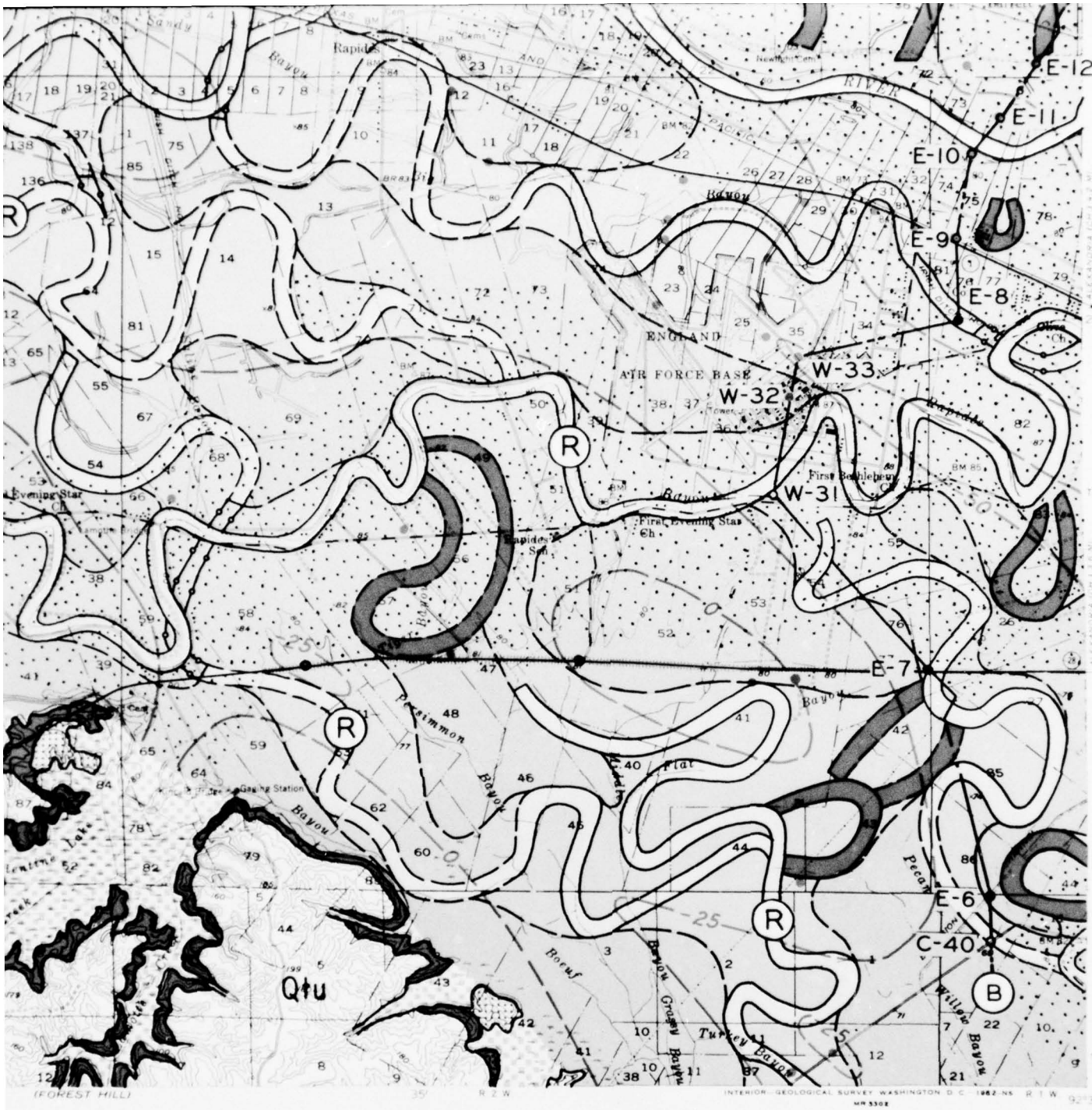
TERTIARY

MIOCENE

- Mf — FLEMING FORMATION
- Mc — CATAHOULA FORMATION

(R) RED RIVER

- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED COURSE REWORKED BY SUBSEQUENT MEANDERING OF A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN[TIST]) USED TO CONTOUR BURIED TERTIARY SURFAC[E]
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN[TIST]) NOT REACHING TERTIARY



ABANDONED
UBSEQUENT
&M

ERTIARY

BY SOILS SCIENTIST)
ED TERTIARY SURFACE

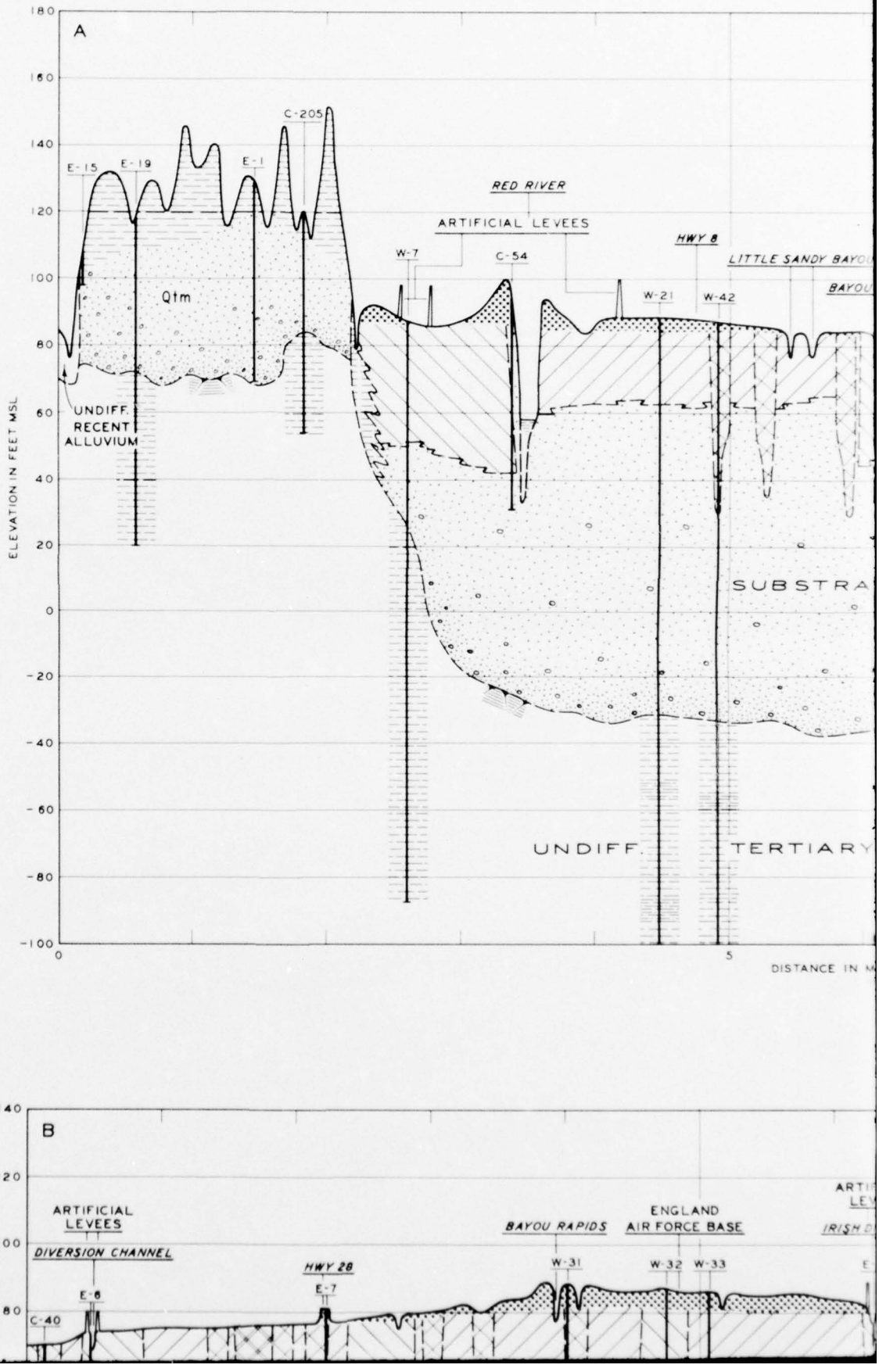
BY SOILS SCIENTIST)
Y

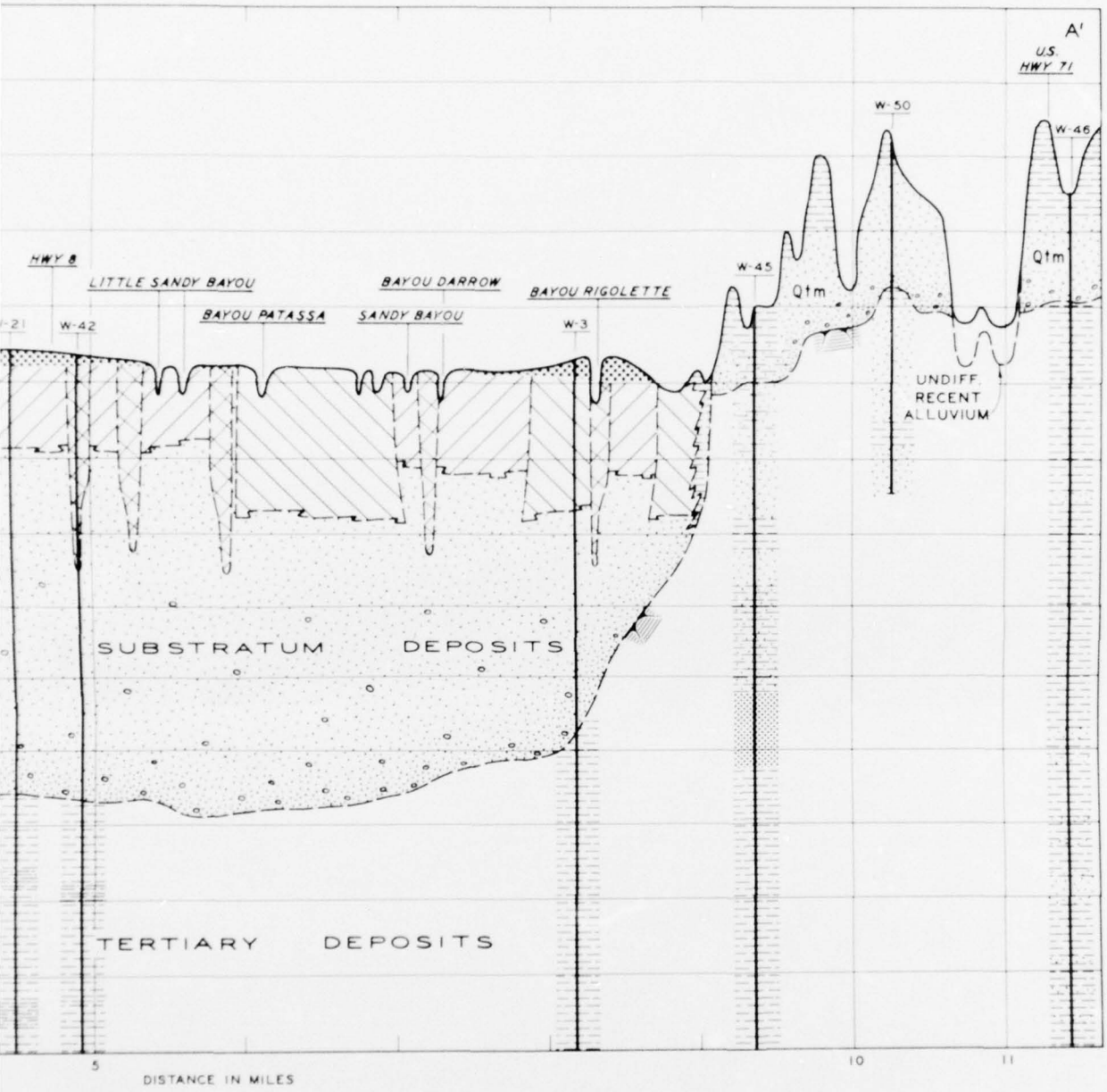
GGED BY SOILS SCIENTIST)
ED TERTIARY SURFACE

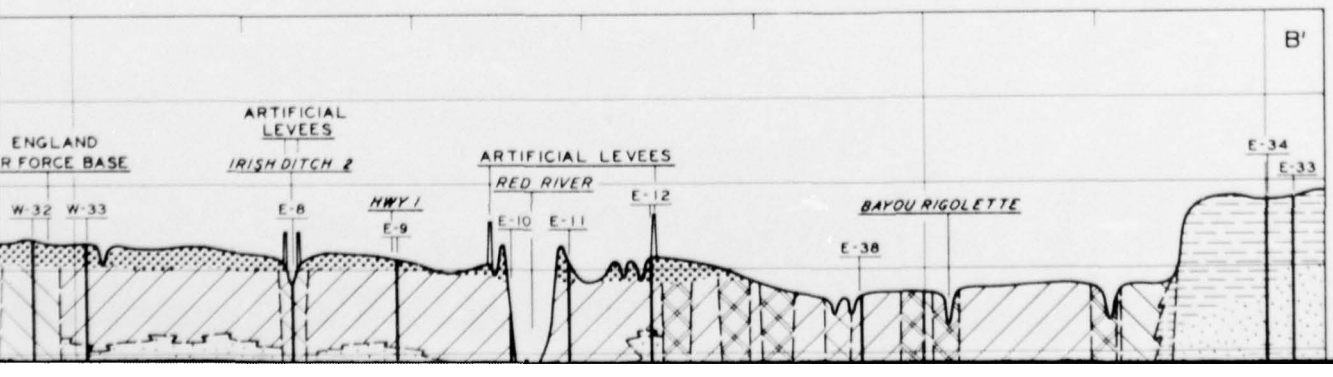
GGED BY SOILS SCIENTIST)
Y

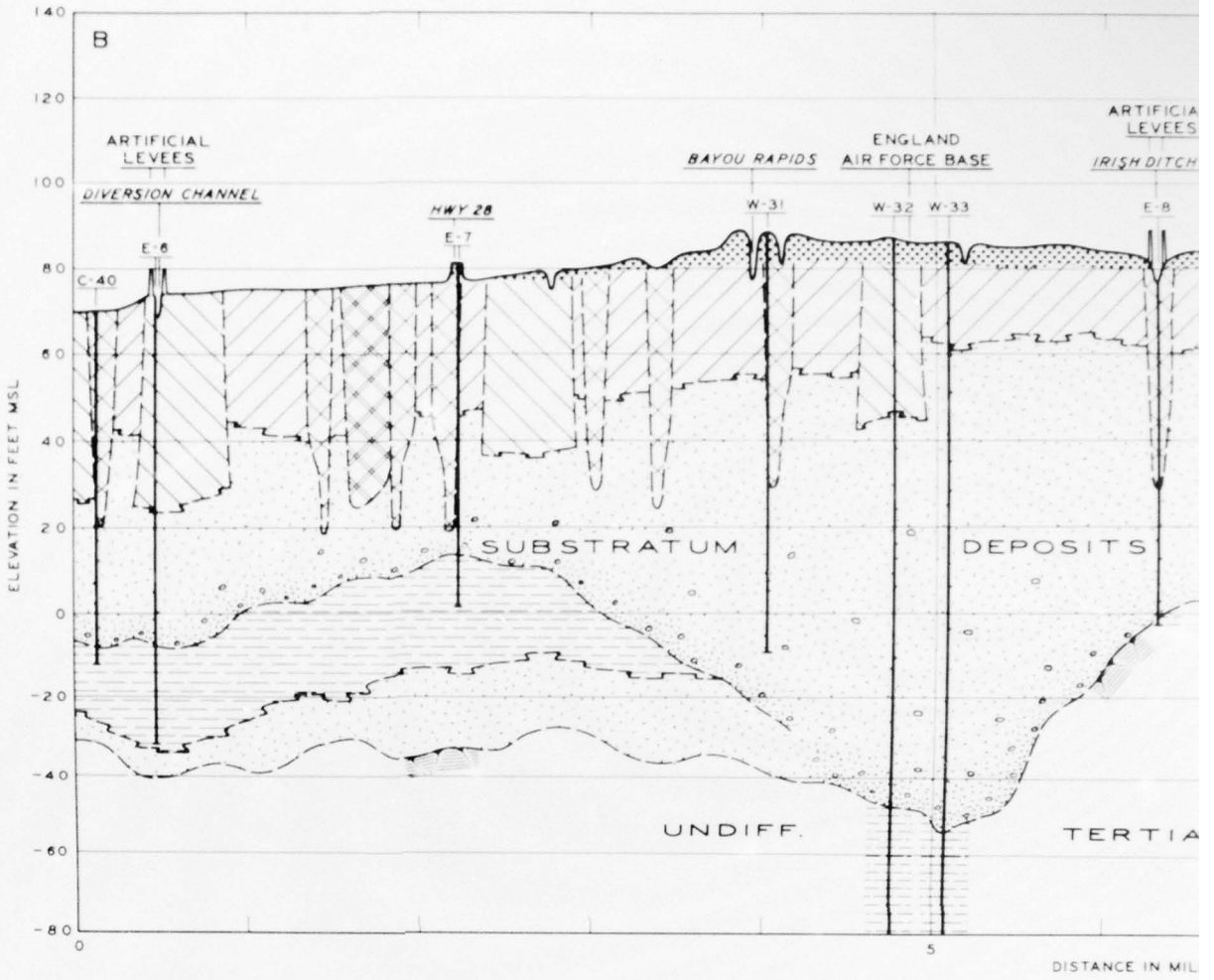
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
BOYCE, LA.

4


A
B
ELEVATION IN FEET MSL
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
E-15
E-19
E-1
C-205
RED RIVER
ARTIFICIAL LEVEES
W-7
C-54
HWY 8
W-21
W-42
LITTLE SANDY BAYOU
BAYOU
Qtm
UNDIFF. RECENT ALLUVIUM
SUBSTRA
UNDIFF.
TERTIARY
0
5
DISTANCE IN M
140
120
100
80
ARTIFICIAL LEVEES
DIVERSION CHANNEL
E-6
C-40
HWY 28
E-7
BAYOU RAPIDS
W-31
ENGLAND AIR FORCE BASE
W-32
W-33
ARTI
LEV
IRISH D
E


A'
U.S. HWY 71
W-50
W-46
HWY 8
LITTLE SANDY BAYOU
BAYOU DARROW
BAYOU RIGOLETTE
W-45
Qtm
Qtm
W-42
BAYOU PATASSA
SANDY BAYOU
W-3
UNDIFF. RECENT ALLUVIUM
SUBSTRATUM DEPOSITS
TERTIARY DEPOSITS
5
10
11
DISTANCE IN MILES


B'
ENGLAND
R FORCE BASE
W-32
W-33
ARTIFICIAL LEVEES
IRISH DITCH 2
E-8
HWY 1
E-9
ARTIFICIAL LEVEES
RED RIVER
E-10
E-11
E-12
BAYOU RIGOLETTE
E-38
E-34
E-33



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- ALLUVIAL APRON

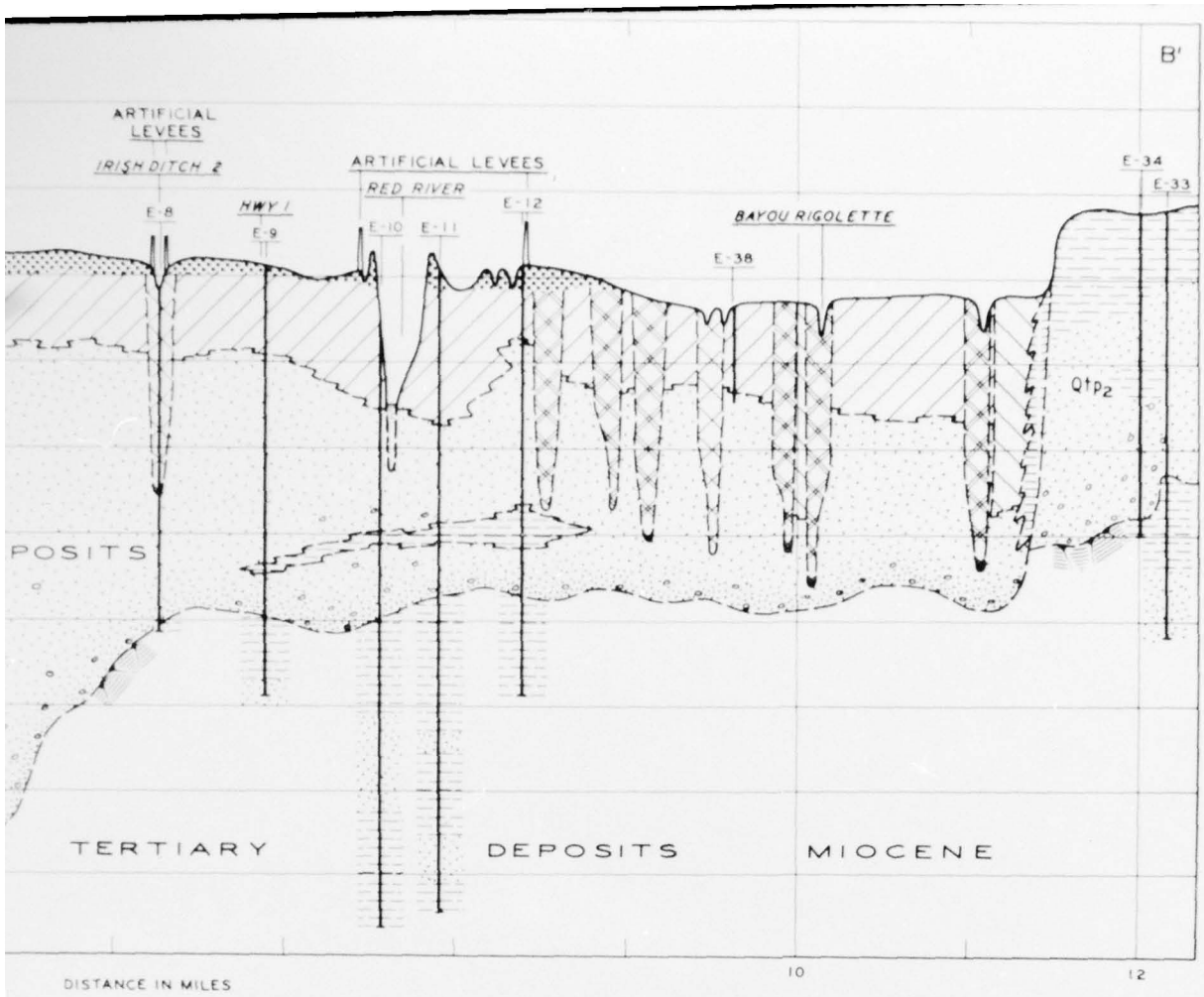
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SANDSTONE
- SHALE
- SANDY CLAY
- SAND AND GRAVEL

MAPPING SYMBOLS

- Qtp$_2$ PRAIRIE TERRACE - LOWER SURFACE
- Qtm MONTGOMERY TERRACE

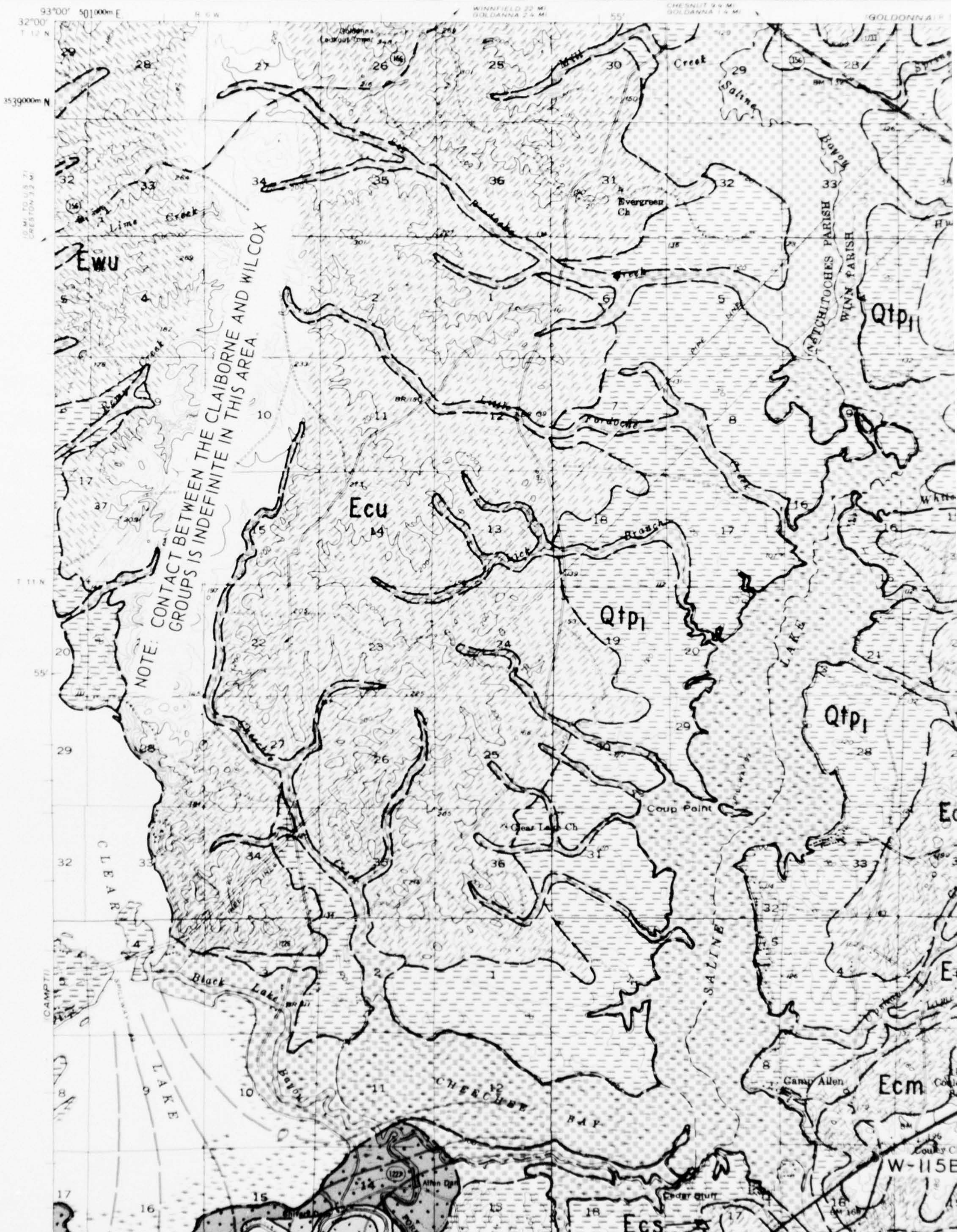


GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

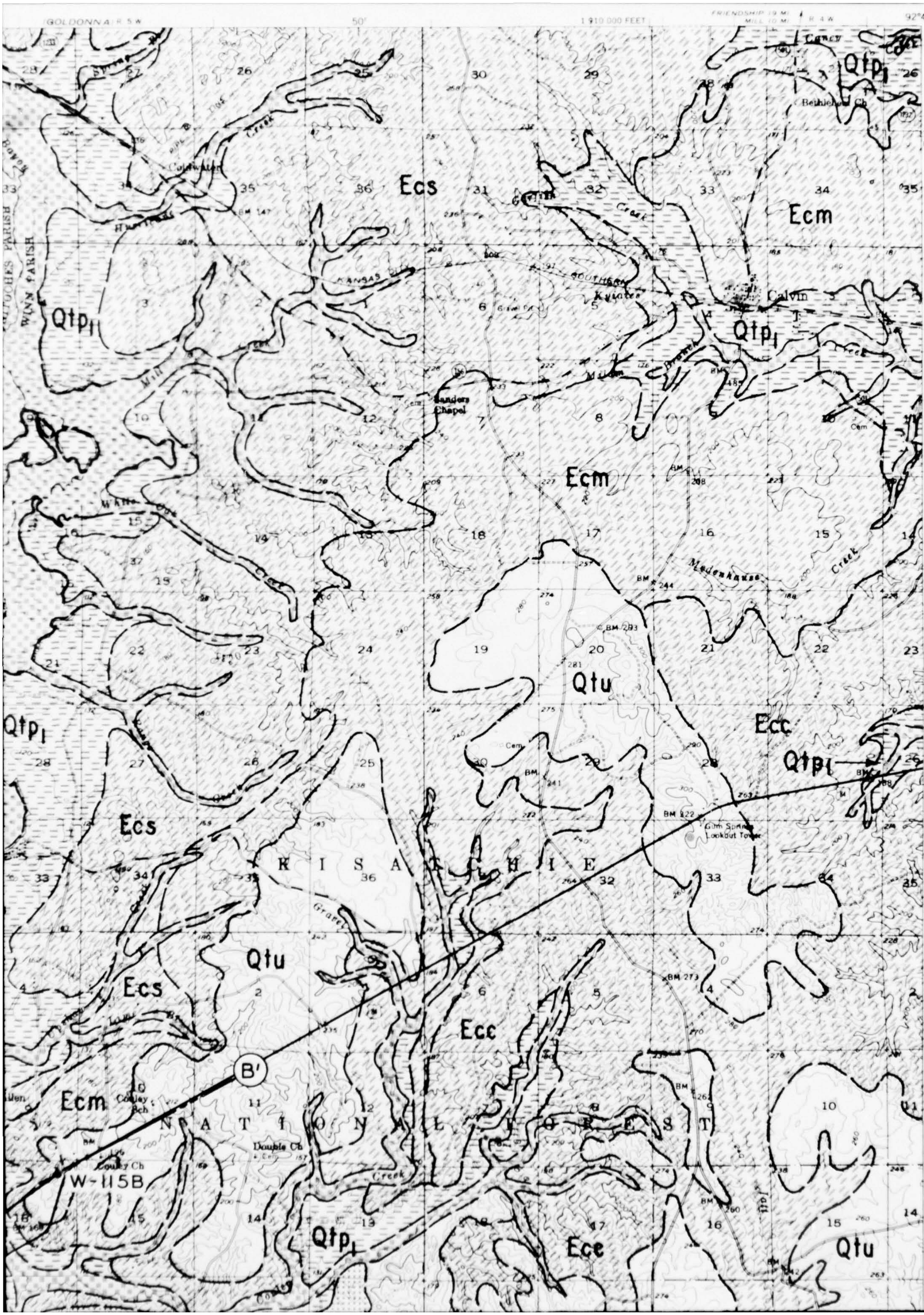
SECTIONS A-A' AND B-B'

BOYCE, LA.

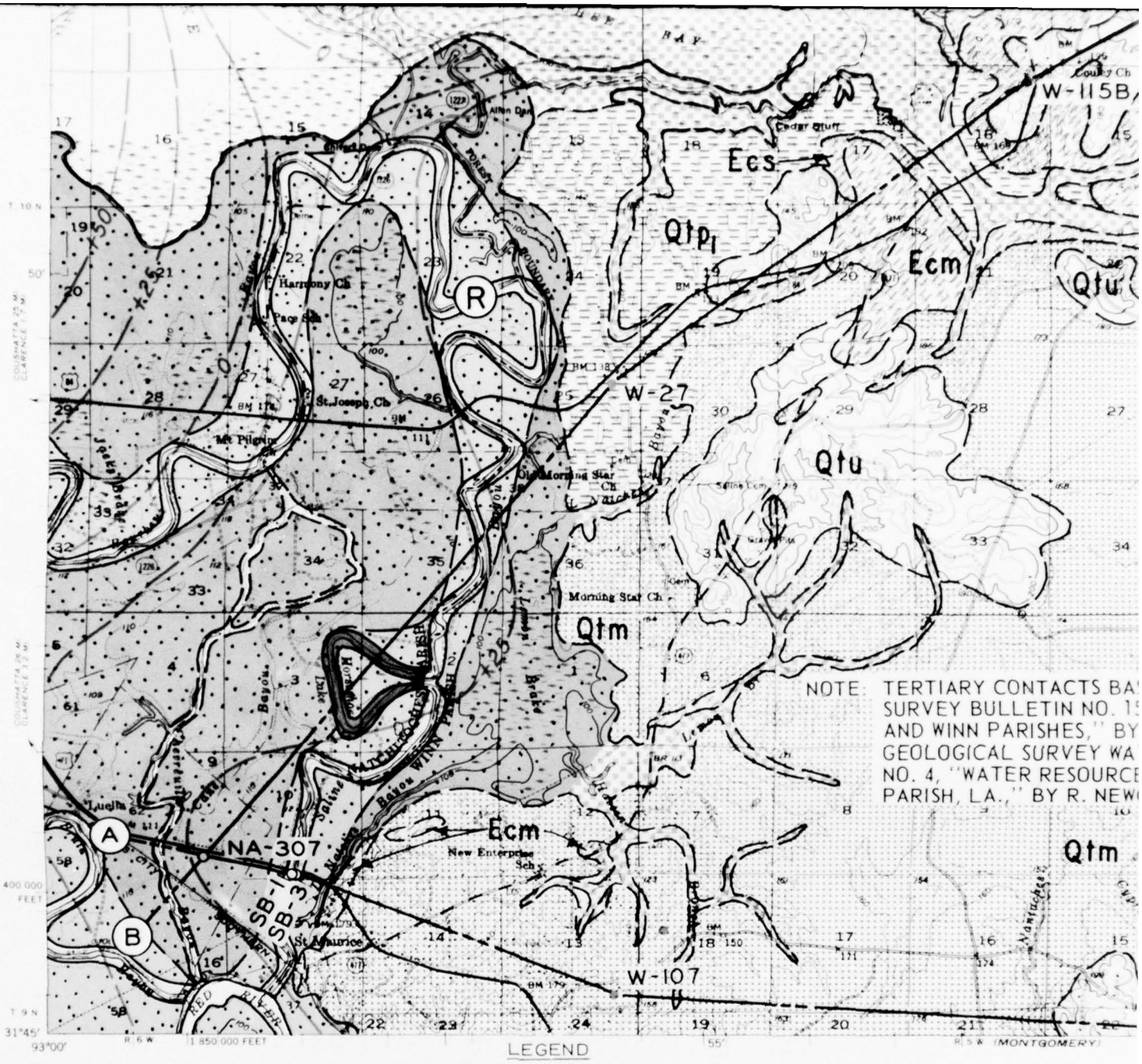
4



93°00'
32°00'
501000m E
3539000m N
55'
NOTE: CONTACT BETWEEN THE CLAIBORNE AND WILCOX GROUPS IS INDEFINITE IN THIS AREA
Ewu
Ecu
Qtp$_1$
Qtp$_1$
Qtp$_1$
Qtp$_1$
Ecm
Ecs
W-115E
NATCHITOCHES PARISH
WINN PARISH
Evergreen Ch
Coup Point
Clear Lake Ch
Camp Allen
Cedar Bluff
Lime Creek
Mill Creek
Saline Bayou
Black Lake
CLEAR LAKE
SALINE
LAKE



50'
1 910 000 FEET
92°45'
32°00'
T 12 N
480 000 FEET
Ecs
Ecm
Qtp1
Qtu
Ecc
Calvin
Sanders Chapel
Bethlehem Ch
Gum Springs Lookout Tower
K I S A T C H I E
N A T I O N A L F O R E S T
Double Ch
Cooley Sch
Cooley Ch
B'
W-115B
WINN PARISH
T 11 N
55'
T 10 N
(WINNFIELD)



NOTE: TERTIARY CONTACTS BA
SURVEY BULLETIN NO. 1
AND WINN PARISHES," BY
GEOLOGICAL SURVEY WA
NO. 4, "WATER RESOURCE
PARISH, LA.," BY R. NEW

LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- MAJOR CREVASSE CHANNELS
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- PRAIRIE TERRACE-UPPER SURFACE
- MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE

TERTIARY

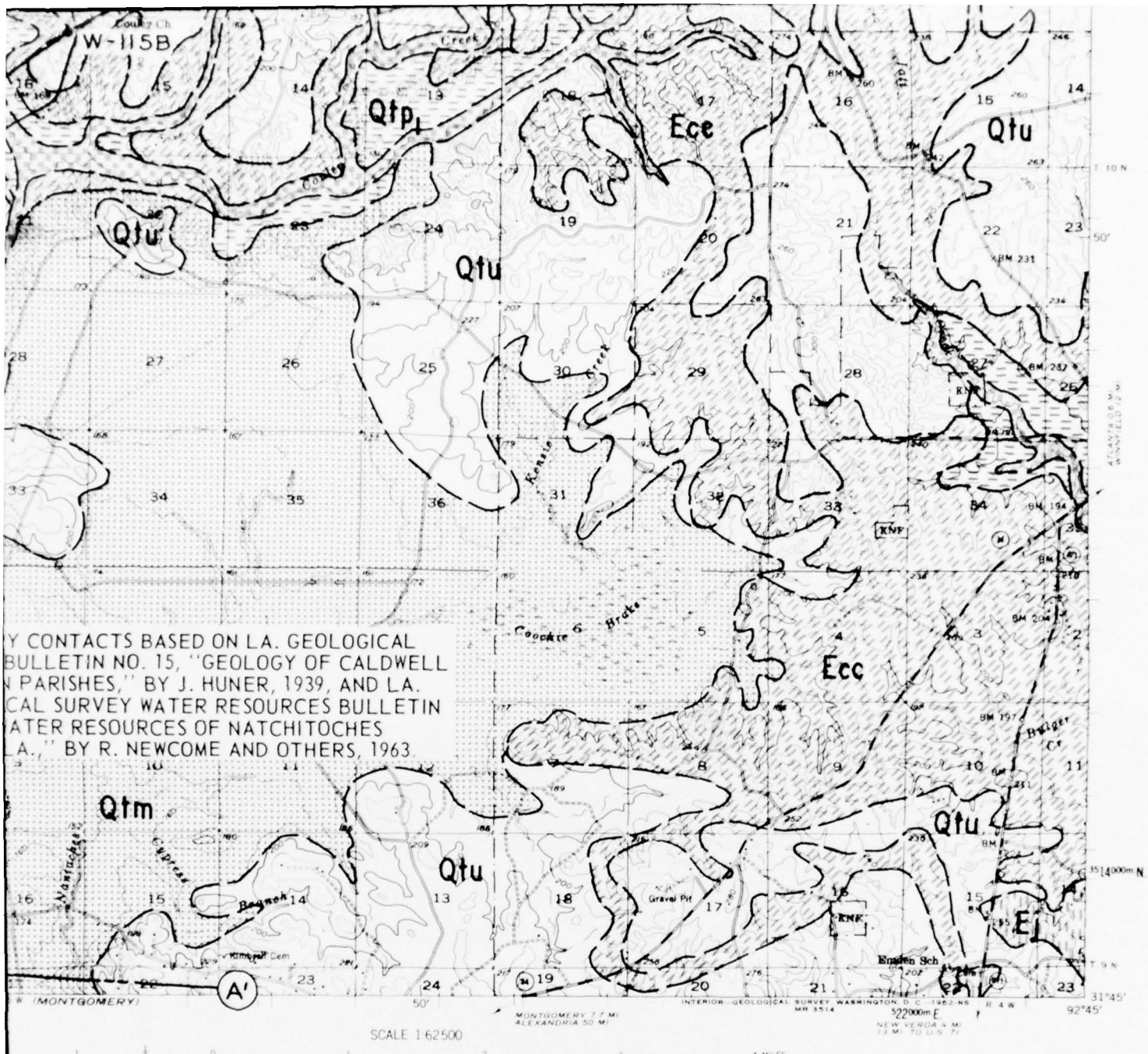
EOCENE

- JACKSON GROUP
- CLAIBORNE GROUP UNDIFFERENTIATED
- COCKFIELD FORMATION
- COOK MOUNTAIN FORMATION
- SPARTA FORMATION

EOCENE–PALEOCENE

- WILCOX GROUP UNDIFFERENTIATED

- (R) RED RIVER
- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIENT USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS II BORING (NOT LOGGED BY SOILS SCIENT NOT REACHING TERTIARY



Y CONTACTS BASED ON LA. GEOLOGICAL
BULLETIN NO. 15, "GEOLOGY OF CALDWELL
N PARISHES," BY J. HUNER, 1939, AND LA.
CAL SURVEY WATER RESOURCES BULLETIN
ATER RESOURCES OF NATCHITOCHES
L A.," BY R. NEWCOME AND OTHERS, 1963

SCALE 1:62500

1 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT 10-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

ERTIARY

BY SOILS SCIENTIST)
D TERTIARY SURFACE

BY SOILS SCIENTIST)

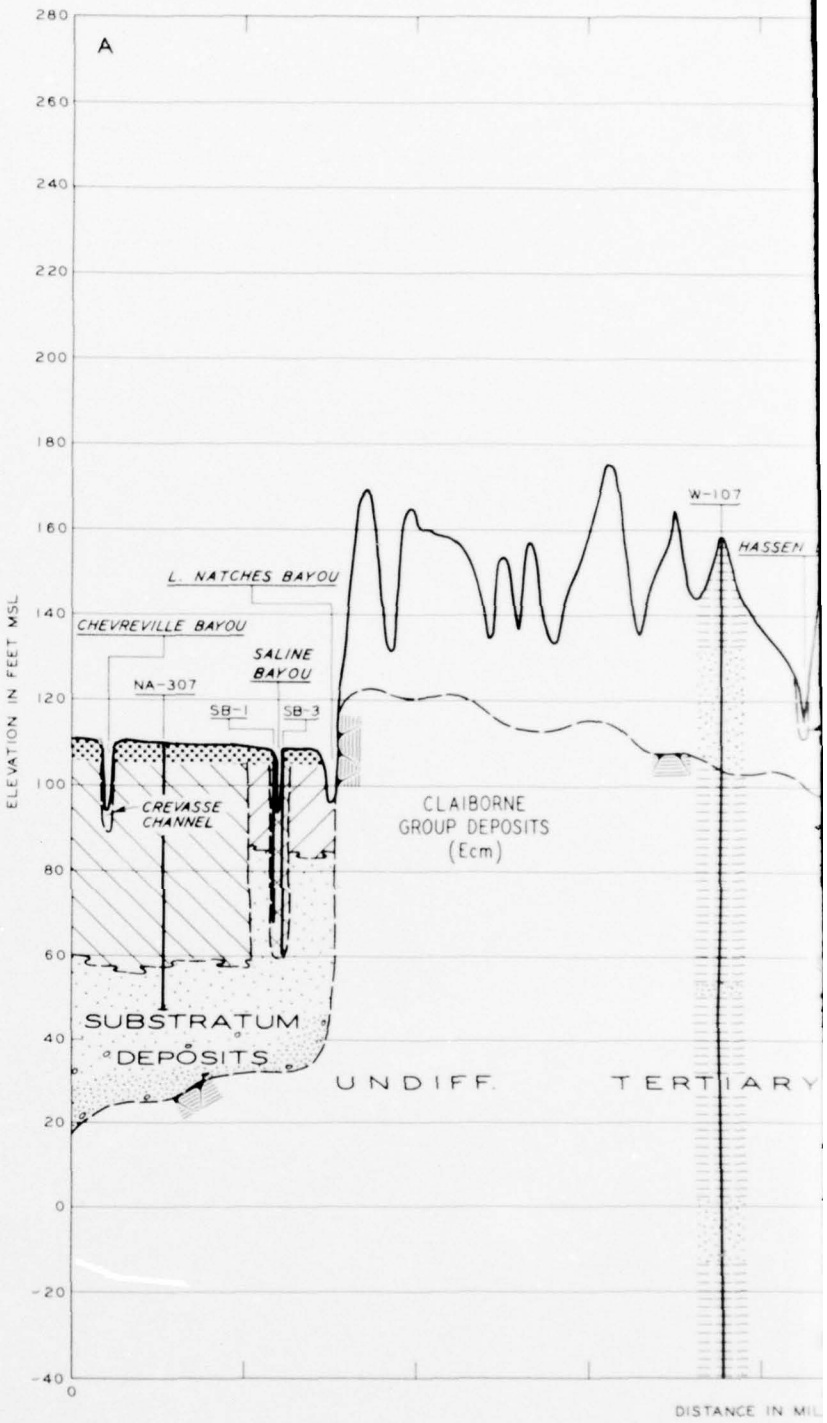
GED BY SOILS SCIENTIST)
D TERTIARY SURFACE

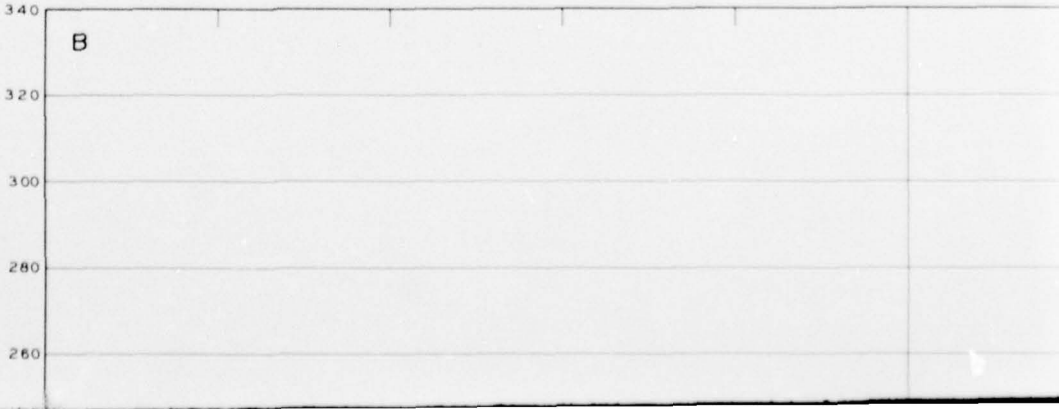
GED BY SOILS SCIENTIST)

GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

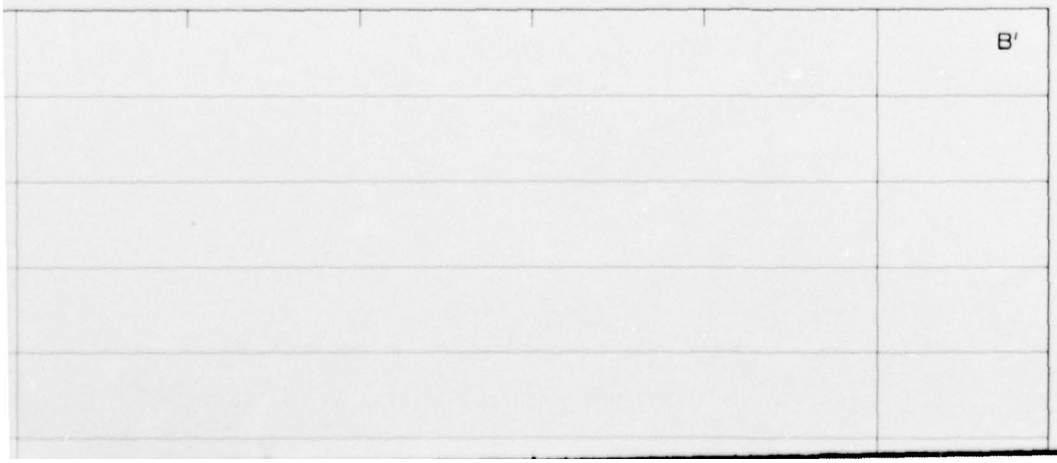
DISTRIBUTION OF ALLUVIAL DEPOSITS

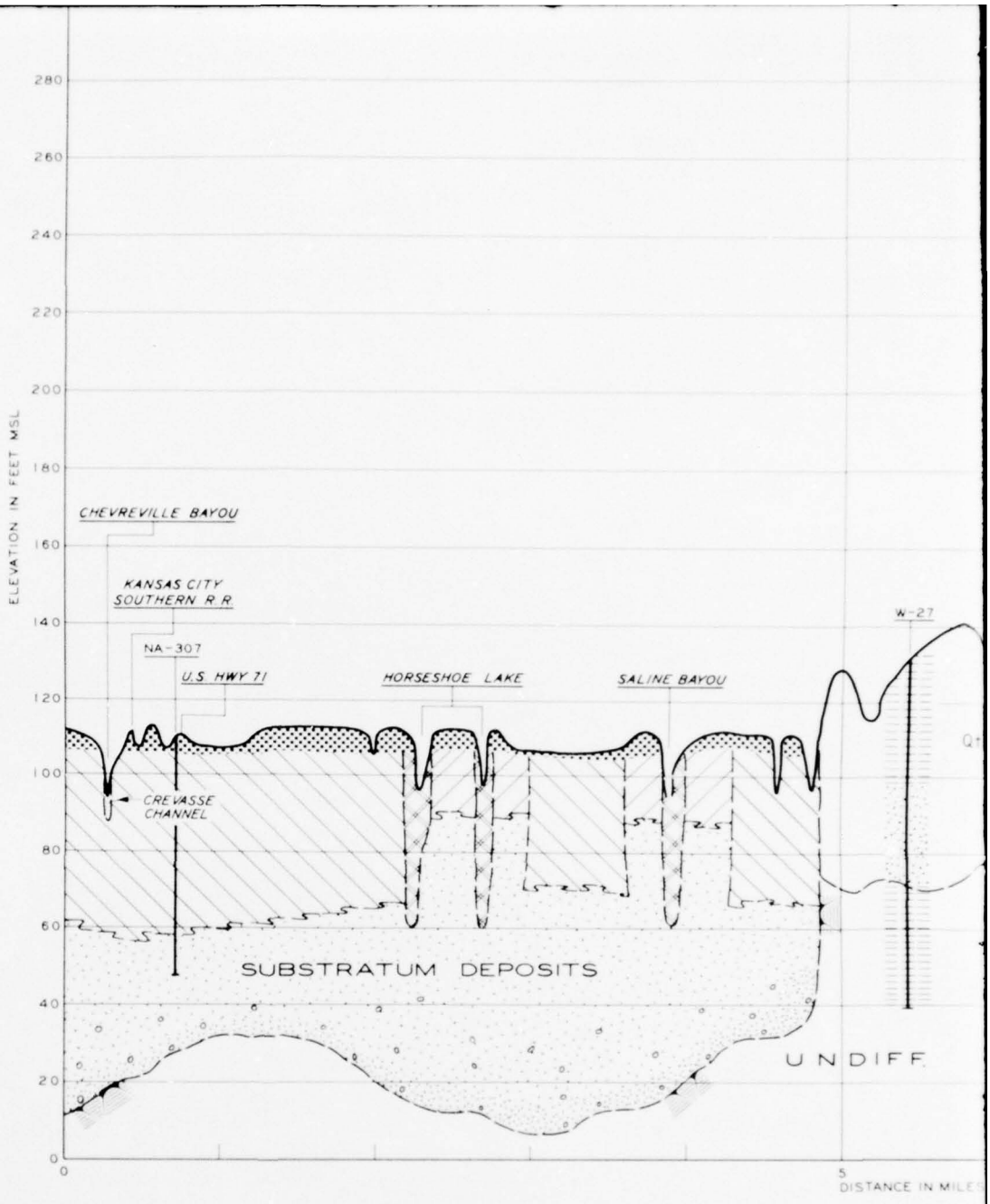
CALVIN, L A.


A
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
-40
0
ELEVATION IN FEET MSL
L. NATCHES BAYOU
CHEVREVILLE BAYOU
SALINE BAYOU
NA-307
SB-1
SB-3
W-107
HASSEN
CREVASSE CHANNEL
CLAIBORNE GROUP DEPOSITS (Ecm)
SUBSTRATUM DEPOSITS
UNDIFF.
TERTIARY
DISTANCE IN MI


B
340
320
300
280
260


A'
NANTACHES CREEK
Qtu
W-107
HASSEN BRANCH
Qtm
UNDIFF. ALLUVIUM
ERTIARY DEPOSITS
5
8
DISTANCE IN MILES


B'



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

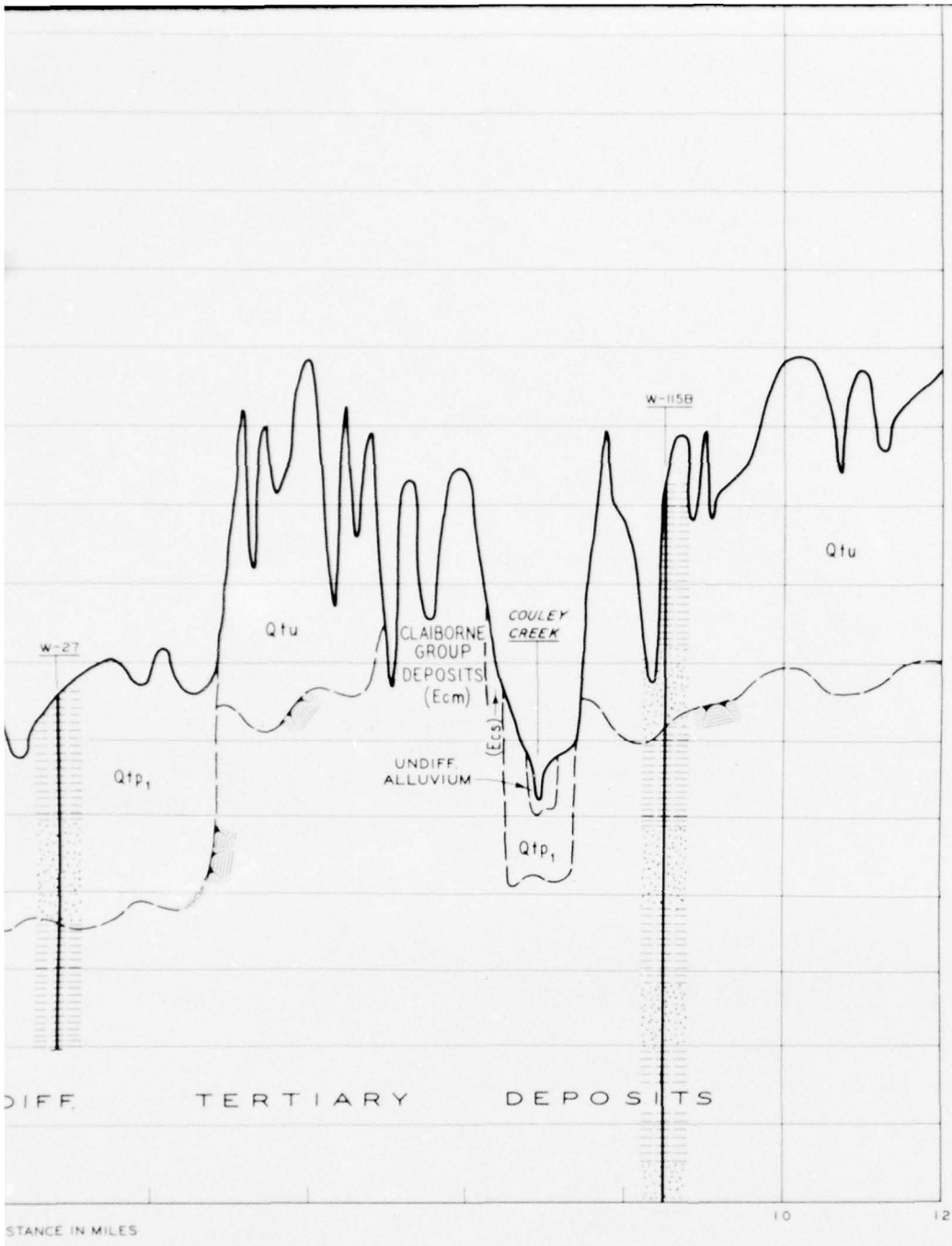
LITHOLOGIC TYPES

- SAND
- CLAY AND SILT

MAPPING SYMBOLS

- Qtp$_u$ PRAIRIE TERRACE-UPPER SURFACE
- Qtm MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE
- Ecm CLAIBORNE GROUP DEPOSITS (COOK MOUNTAIN FORMATION)
- Ecs CLAIBORNE GROUP DEPOSITS (SPARATA FORMATION)

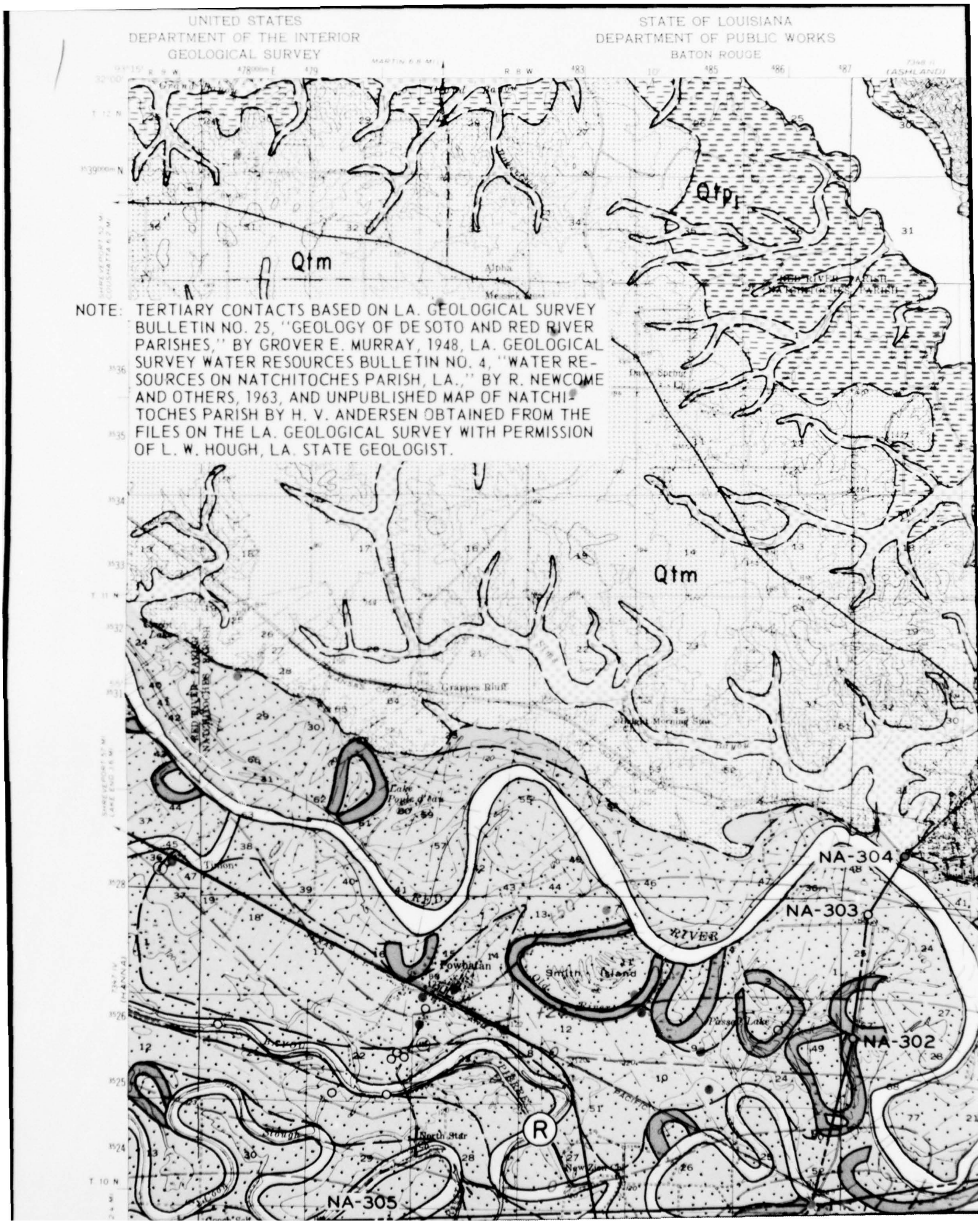
3

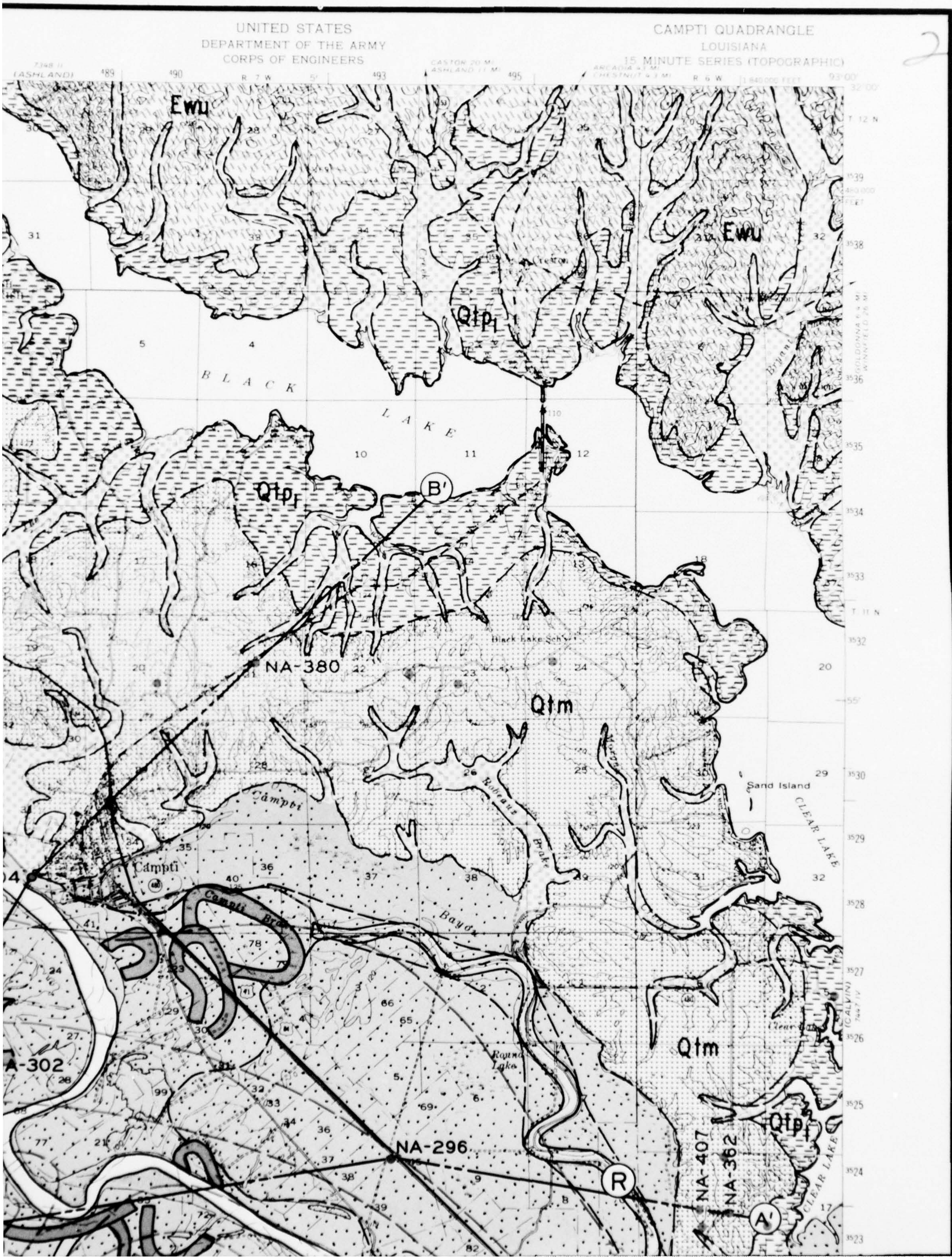


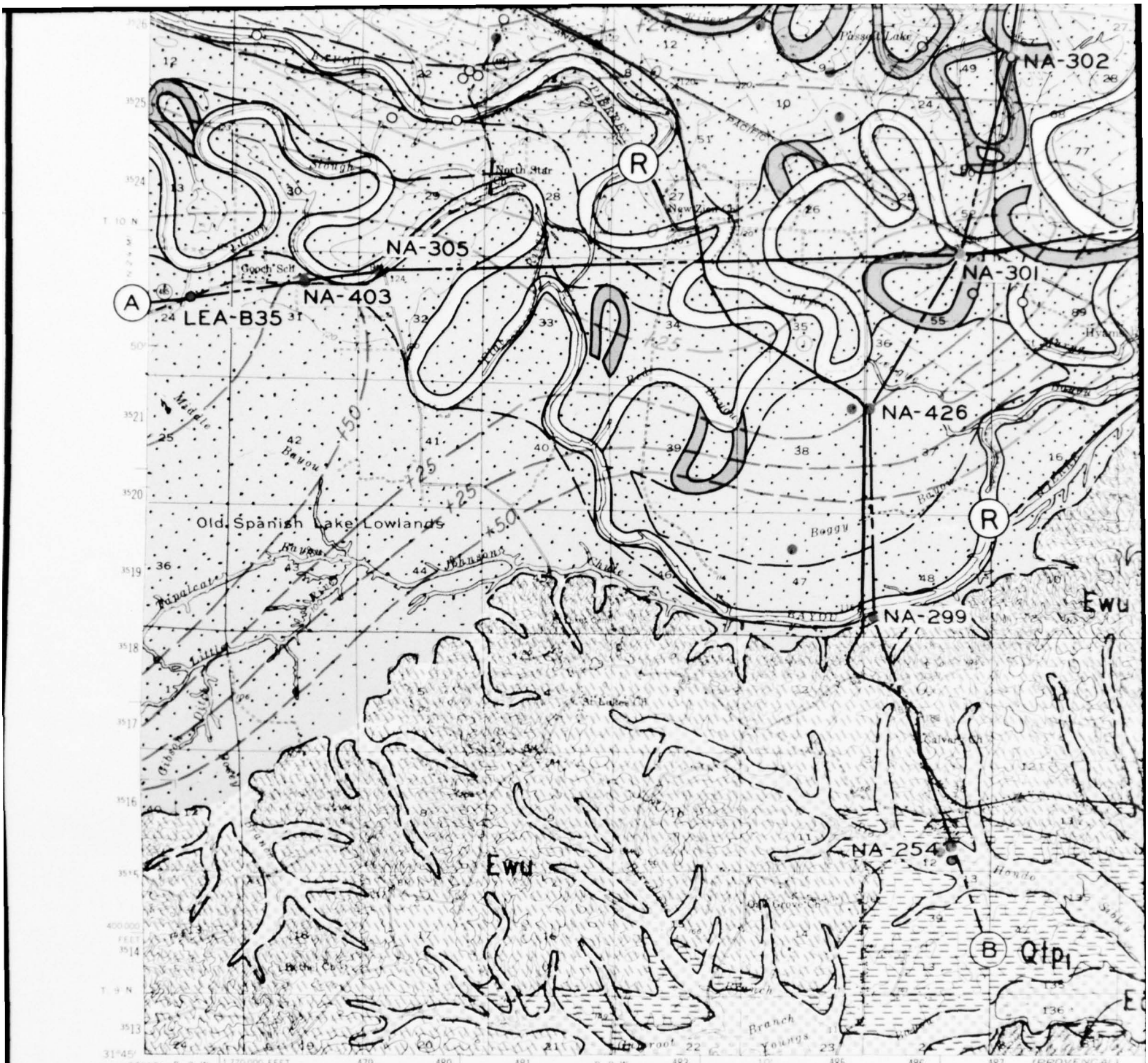
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

SECTIONS A-A' AND B-B'

CALVIN, LA.


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE
Qtm
Qtp
Qtm
NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 25, "GEOLOGY OF DE SOTO AND RED RIVER PARISHES," BY GROVER E. MURRAY, 1948, LA. GEOLOGICAL SURVEY WATER RESOURCES BULLETIN NO. 4, "WATER RESOURCES ON NATCHITOCHES PARISH, LA.," BY R. NEWCOME AND OTHERS, 1963, AND UNPUBLISHED MAP OF NATCHITOCHES PARISH BY H. V. ANDERSEN OBTAINED FROM THE FILES ON THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
NA-304
NA-303
NA-302
NA-305
RIVER
Powhatan
Smith Island
North Star
R


UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
CAMPTI QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)
Ewu
Qtp1
BLACK LAKE
B'
NA-380
Black Lake Sch
Qtm
Sand Island
CLEAR LAKE
Campti
Campti Brake
Bayou
Round Lake
A-302
NA-296
R
NA-407
NA-362
A'



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp1 PRAIRIE TERRACE-UPPER SURFACE
- Qtm MONTGOMERY TERRACE

TERTIARY

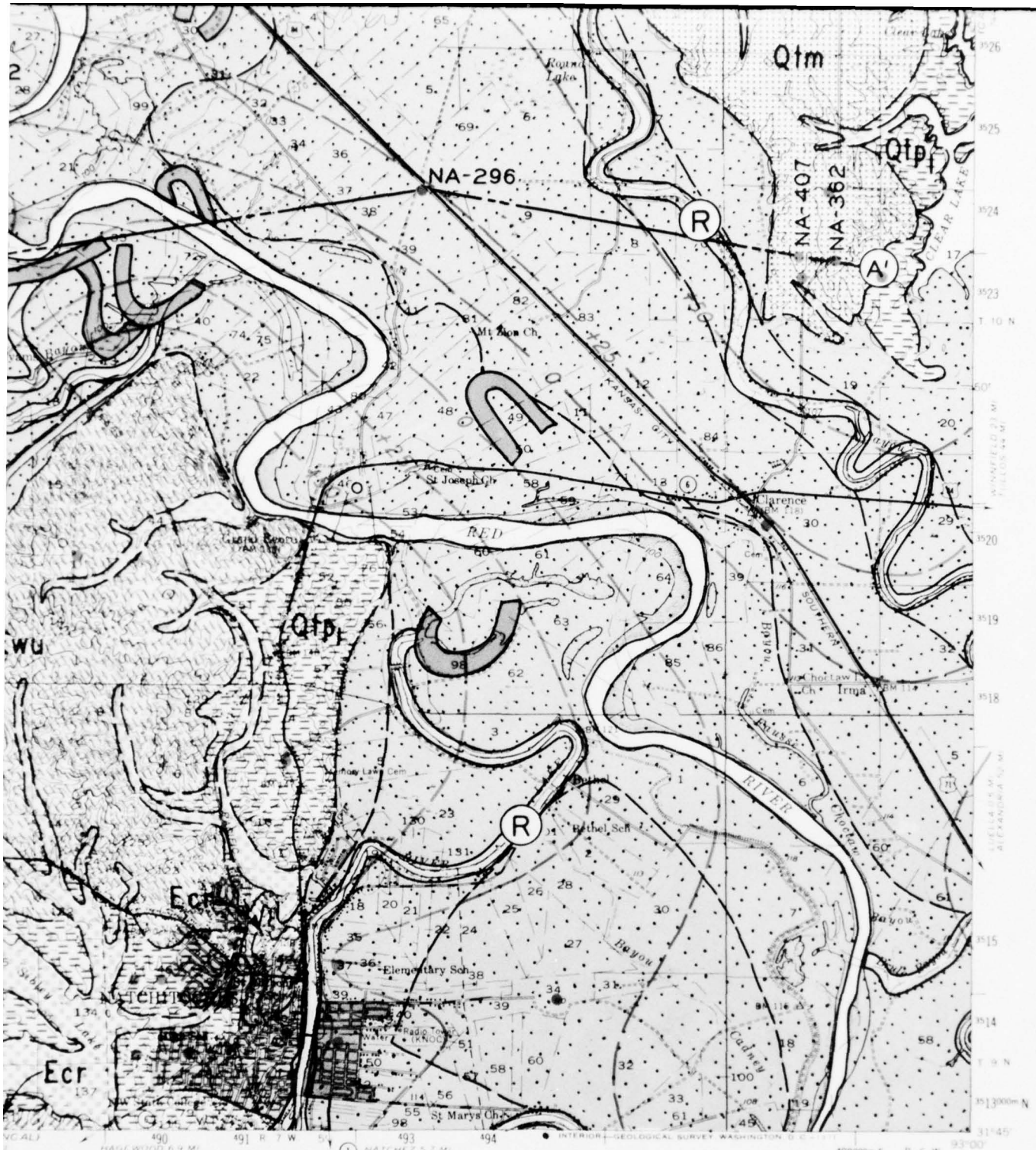
EOCENE

- Ecw CLAIBORNE GROUP UNDIFFERENTIATED
- Ec CANE RIVER FORMATION

EOCENE-PALEOCENE

- Ewu WILCOX GROUP UNDIFFERENTIATED

- (R) RED RIVER
- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST USED TO CONTOUR BURIED TERTIARY SURFAC
- CLASS I BORING (LOGGED BY SOILS SCIENTIST NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN USED TO CONTOUR BURIED TERTIARY SURFAC
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN NOT REACHING TERTIARY

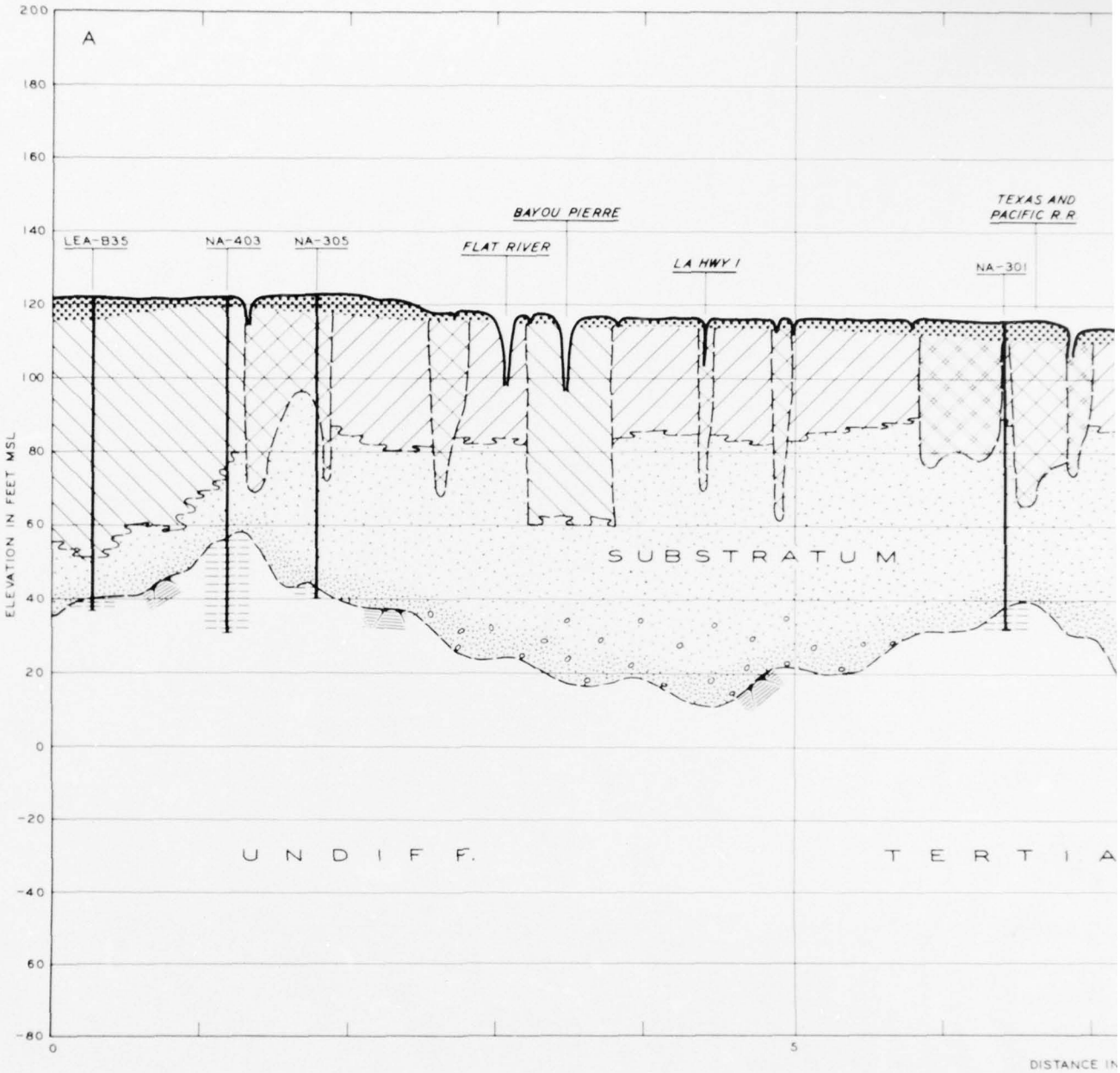


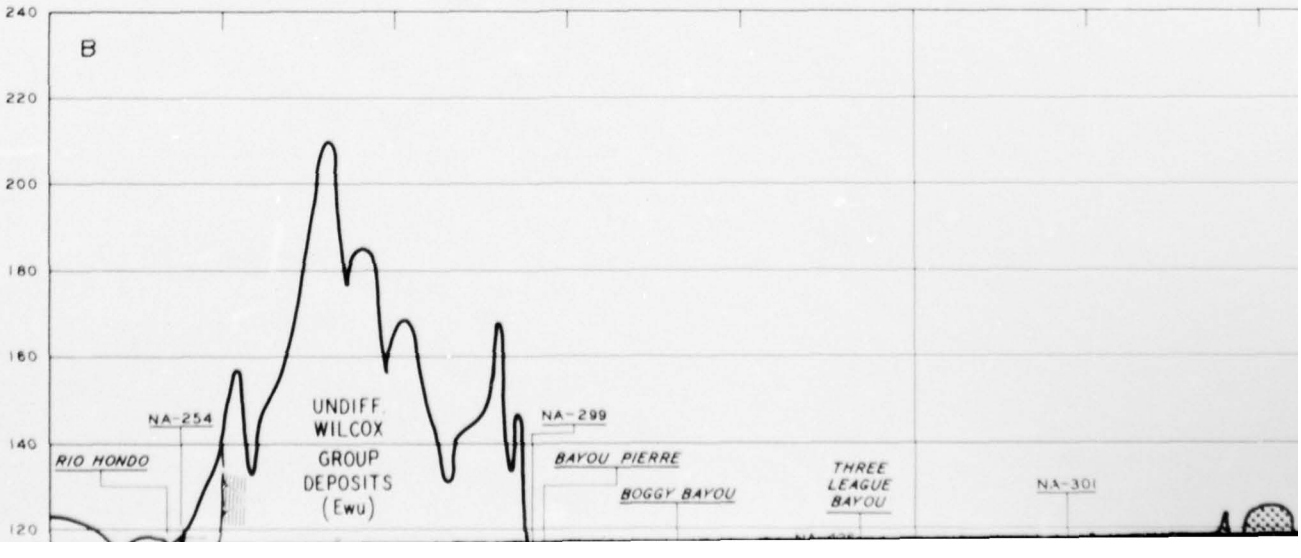
GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

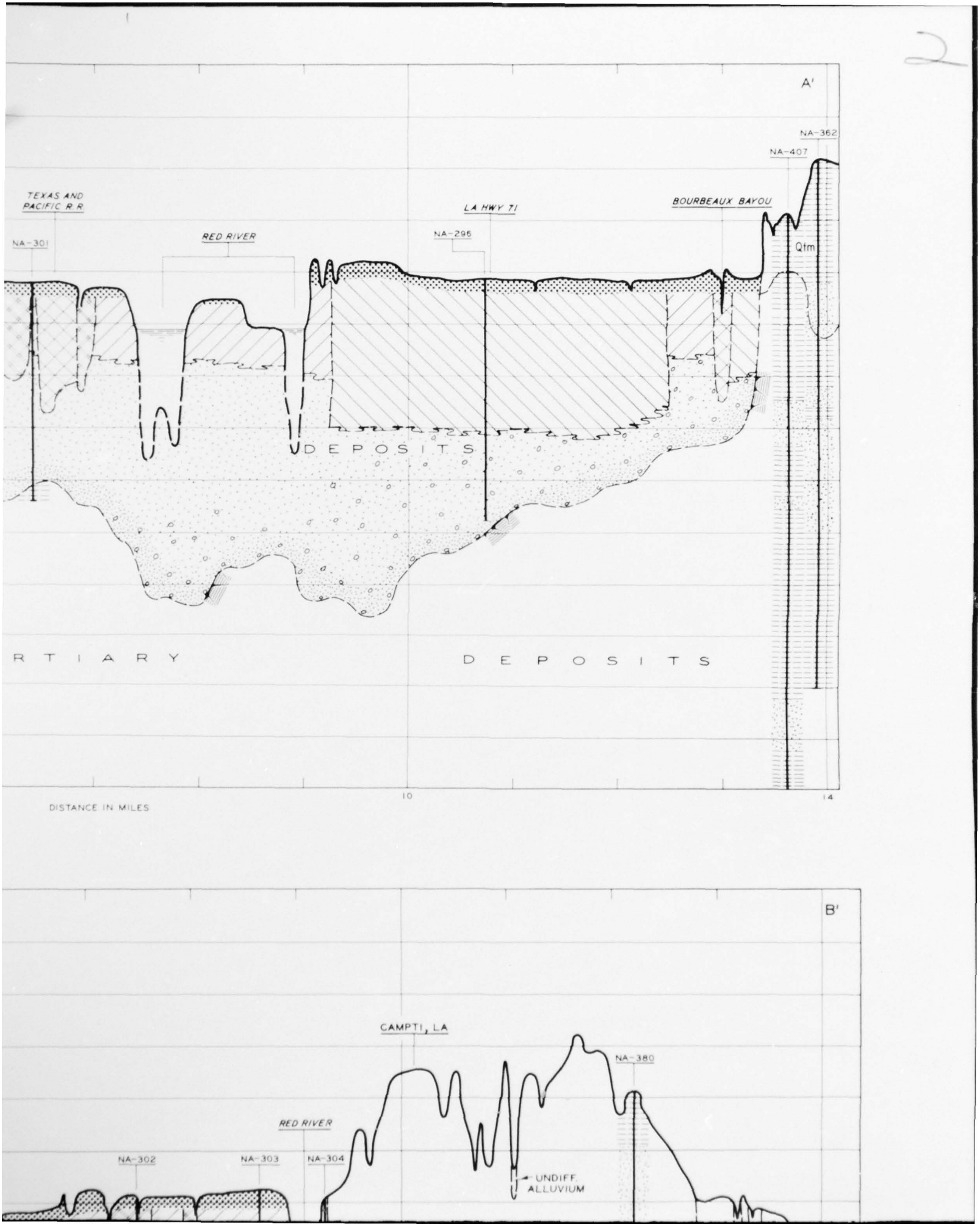
DISTRIBUTION OF ALLUVIAL DEPOSITS

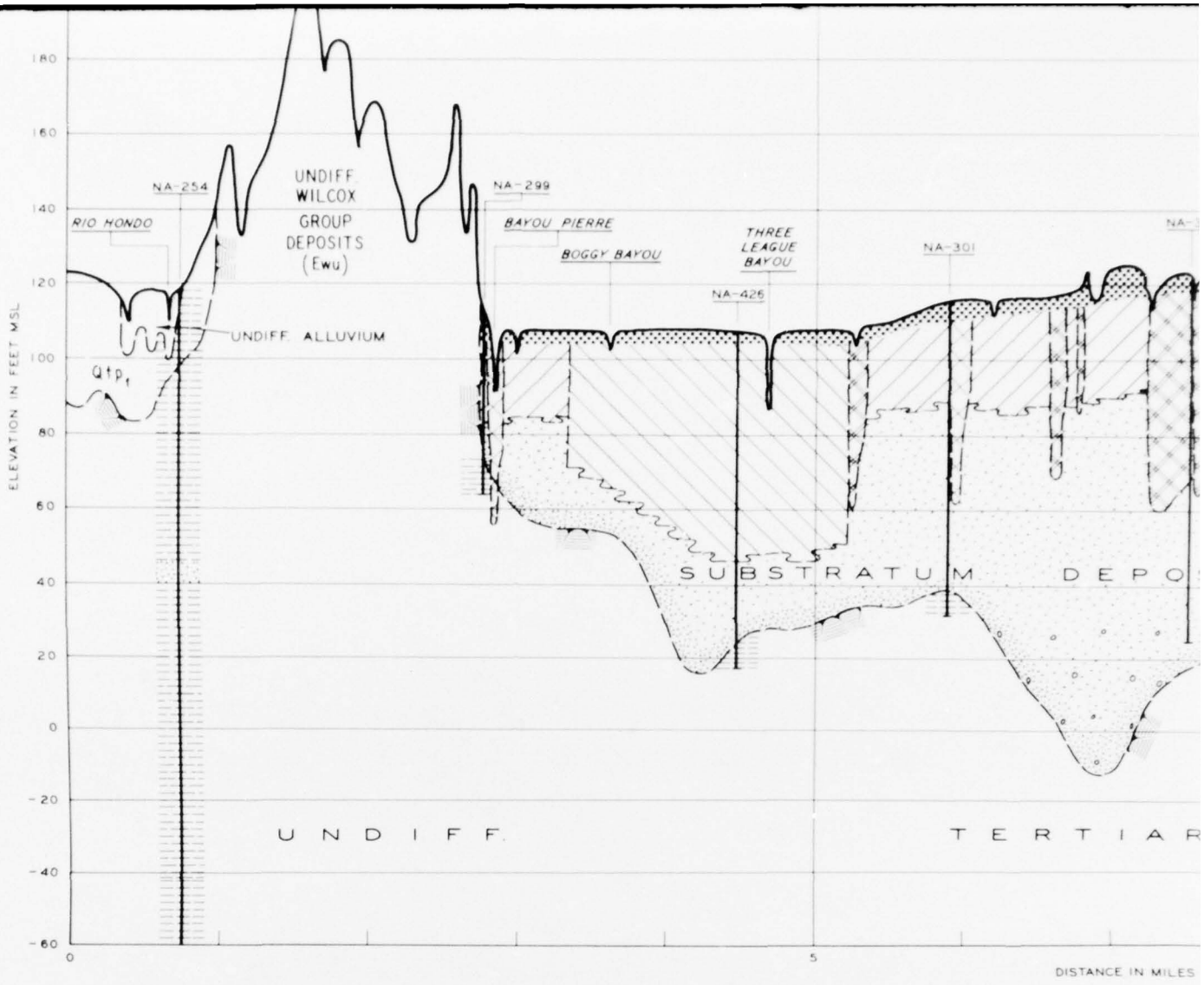
CAMPTI, LA.

4


A
LEA-835
NA-403
NA-305
FLAT RIVER
BAYOU PIERRE
LA HWY 1
TEXAS AND PACIFIC R.R.
NA-301
ELEVATION IN FEET MSL
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
-80
SUBSTRATUM
UNDIFF.
TERTIA
0
5
DISTANCE IN


B
240
220
200
180
160
140
120
NA-254
RIO HONDO
UNDIFF.
WILCOX
GROUP
DEPOSITS
(Ewu)
NA-299
BAYOU PIERRE
BOGGY BAYOU
THREE
LEAGUE
BAYOU
NA-301


A'
NA-362
NA-407
TEXAS AND PACIFIC R.R.
NA-301
RED RIVER
LA HWY 71
NA-296
BOURBEAUX BAYOU
Qtm
DEPOSITS
RTIARY
DEPOSITS
10
14
DISTANCE IN MILES
B'
CAMPTI, LA
NA-380
RED RIVER
NA-302
NA-303
NA-304
UNDIFF. ALLUVIUM



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

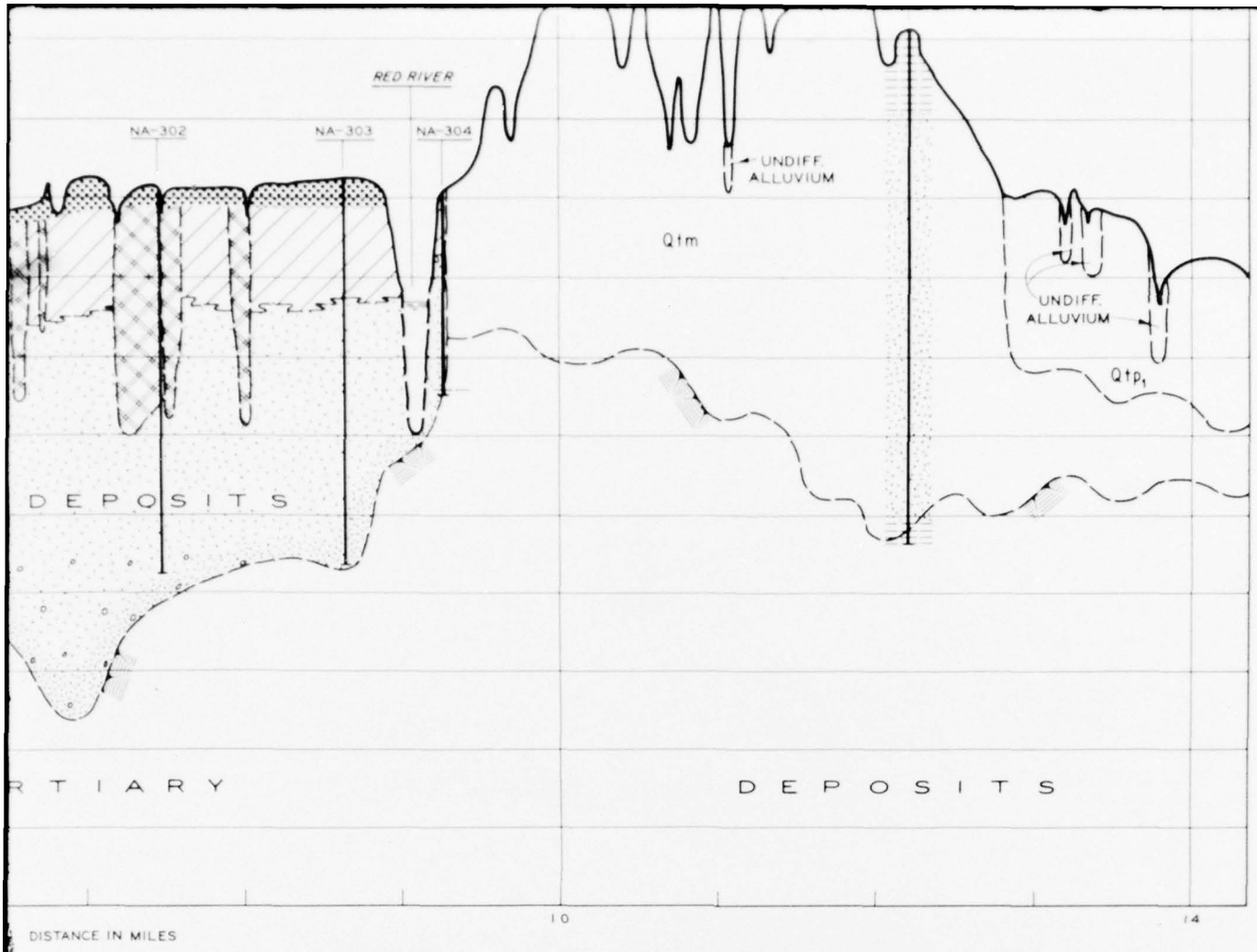
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

- Qtp1 — PRAIRIE TERRACE- UPPER SURFACE
- Qtm — MONTGOMERY TERRACE DEPOSITS
- Ewu — UNDIFFERENTIATED WILCOX GROUP DEPOSITS



GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

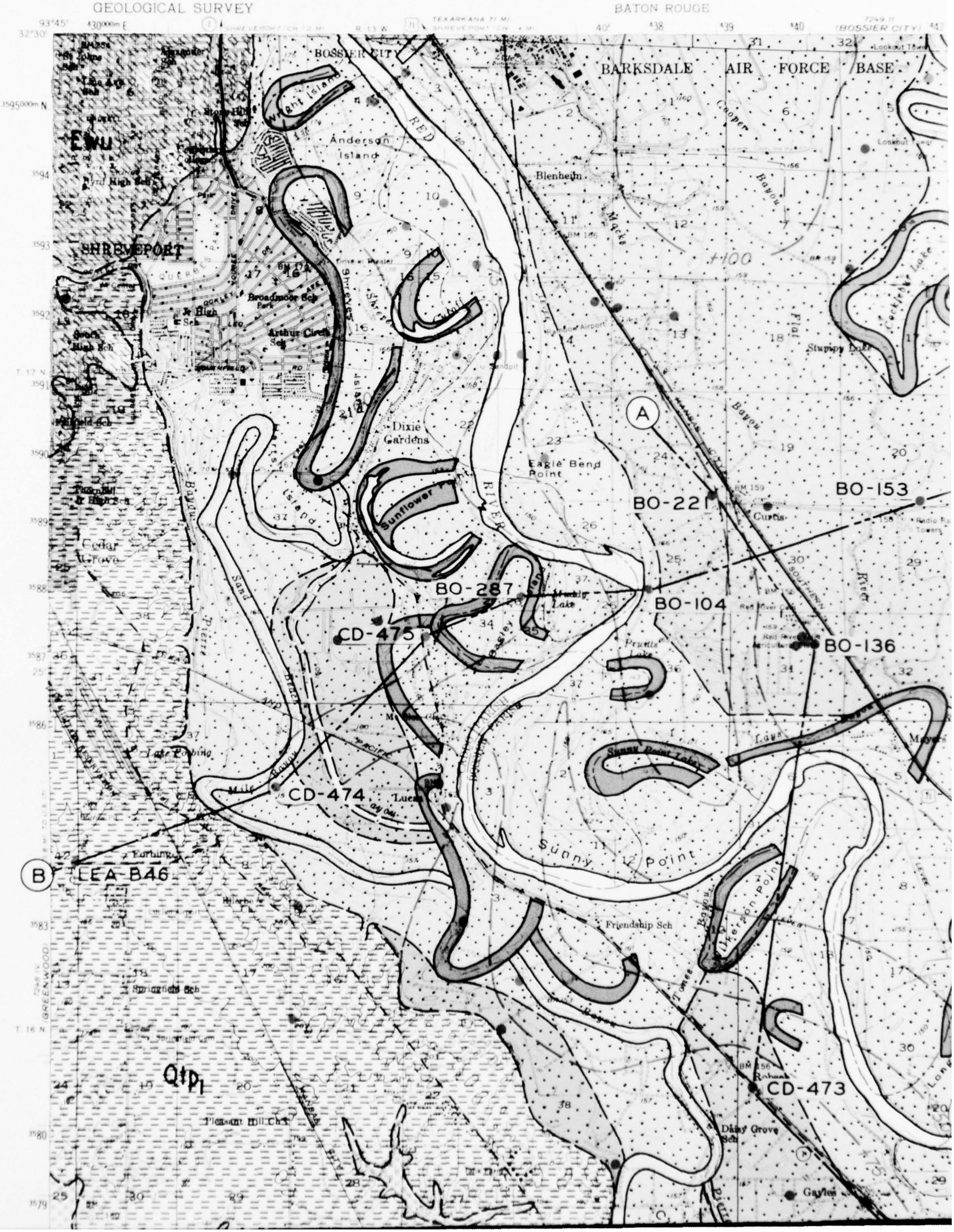
SECTIONS A-A' AND B-B'

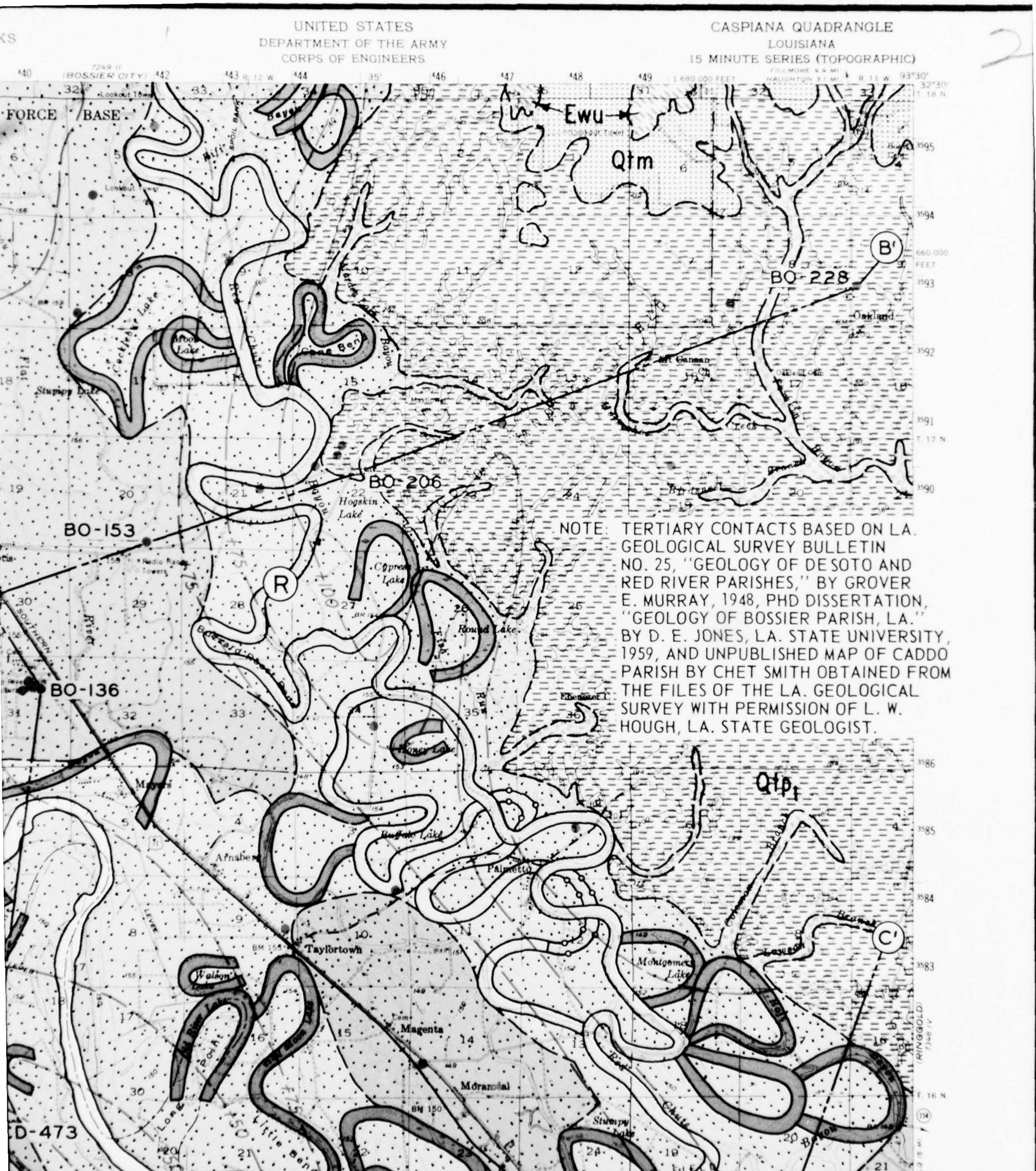
CAMPTI, LA.

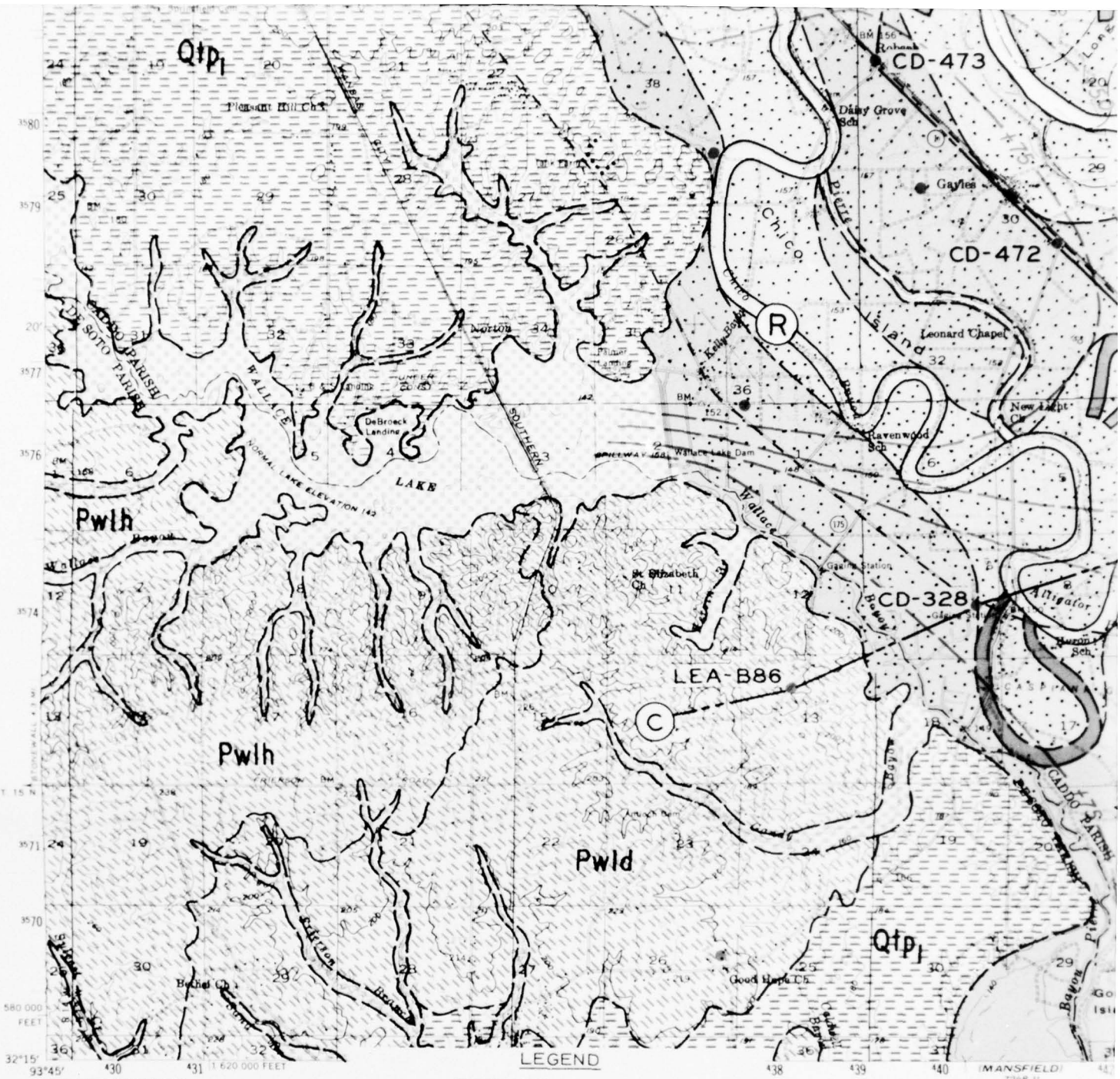
4

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE




UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
CASPIANA QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)
FORCE BASE
Ewu
Qtm
B'
BO-228
Oakland
Mt Canaan
BO-206
Hogskin Lake
BO-153
R
Cypress Lake
Round Lake
BO-136
Honey Lake
NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 25, ''GEOLOGY OF DE SOTO AND RED RIVER PARISHES,'' BY GROVER E. MURRAY, 1948, PHD DISSERTATION, ''GEOLOGY OF BOSSIER PARISH, LA.'' BY D. E. JONES, LA. STATE UNIVERSITY, 1959, AND UNPUBLISHED MAP OF CADDO PARISH BY CHET SMITH OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
Qtp1
Buffalo Lake
Palmetto
Taylortown
Montgomery Lake
C'
Magenta
Moranéal
CD-473
Little Bend
Stumpy Lake
Elm Grove
BO-288



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- MAJOR CREVASSE CHANNELS
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp — PRAIRIE TERRACE-UPPER SURFACE
- Qtm — MONTGOMERY TERRACE

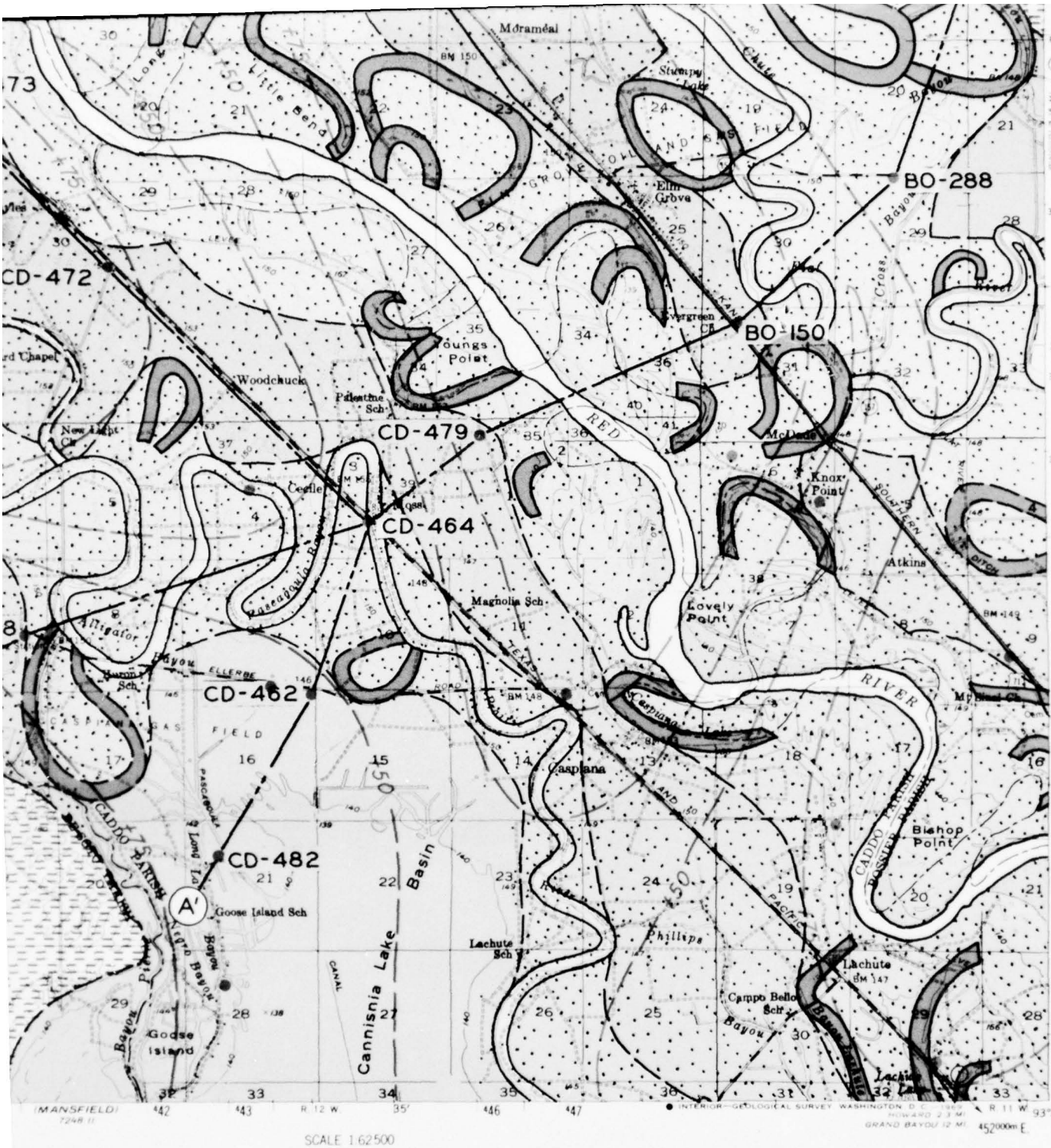
TERTIARY

EOCENE-PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED
- Pwlh — LOGANSPORT FORMATION (AFTER MURRAY-INCLUDES LIME HILL MEMBER IN DESOTO PARISH)
- Pwld — LOGANSPORT FORMATION (AFTER MURRAY-INCLUDES COW BAYOU AND DOLET HILLS MEMBERS IN DESOTO PARISH)

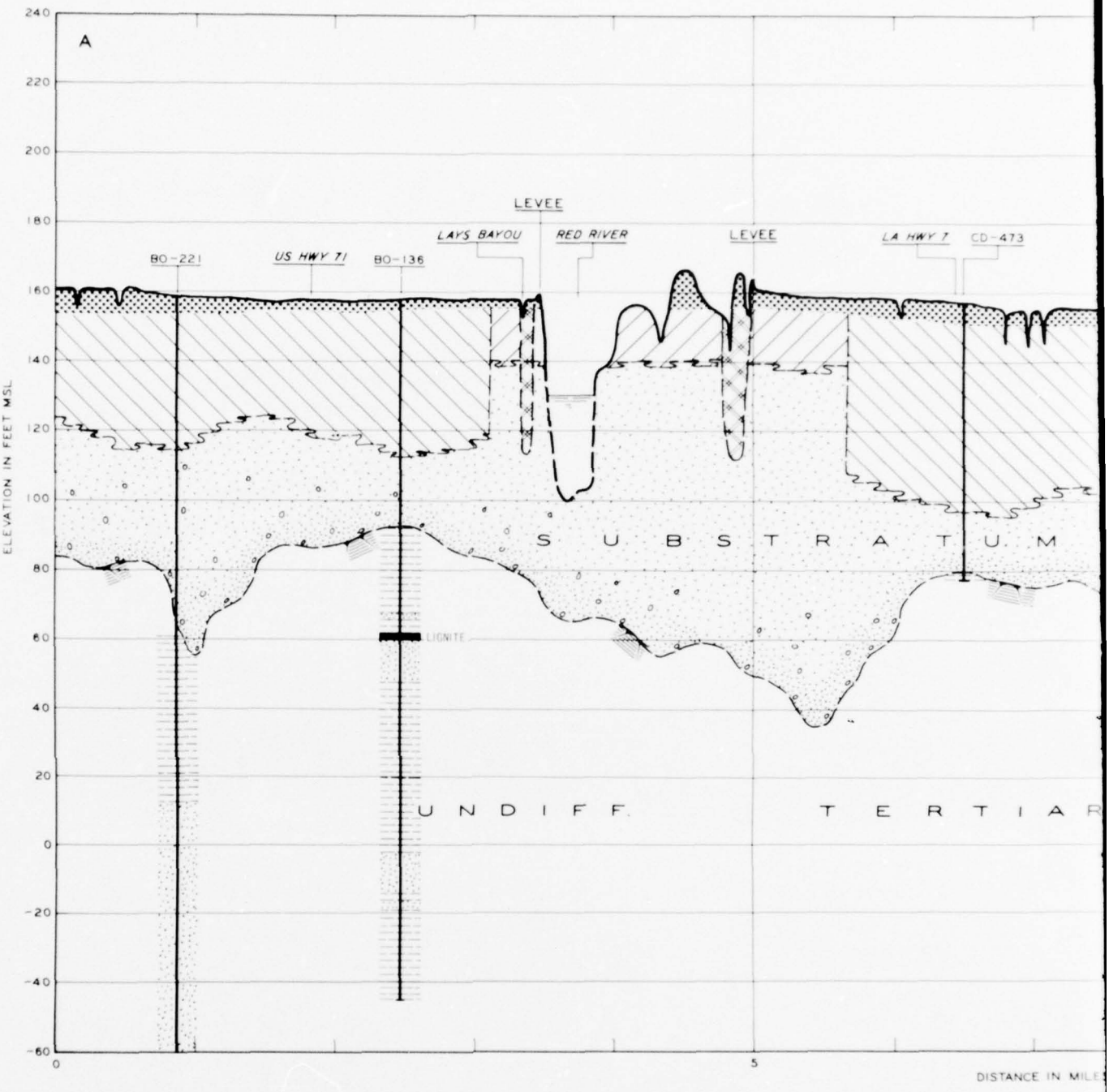
- (R) RED RIVER
- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTI USED TO CONTOUR BURIED TERTIARY SURF
- CLASS I BORING (LOGGED BY SOILS SCIENTI NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SC USED TO CONTOUR BURIED TERTIARY SURF
- CLASS II BORING (NOT LOGGED BY SOILS SC NOT REACHING TERTIARY

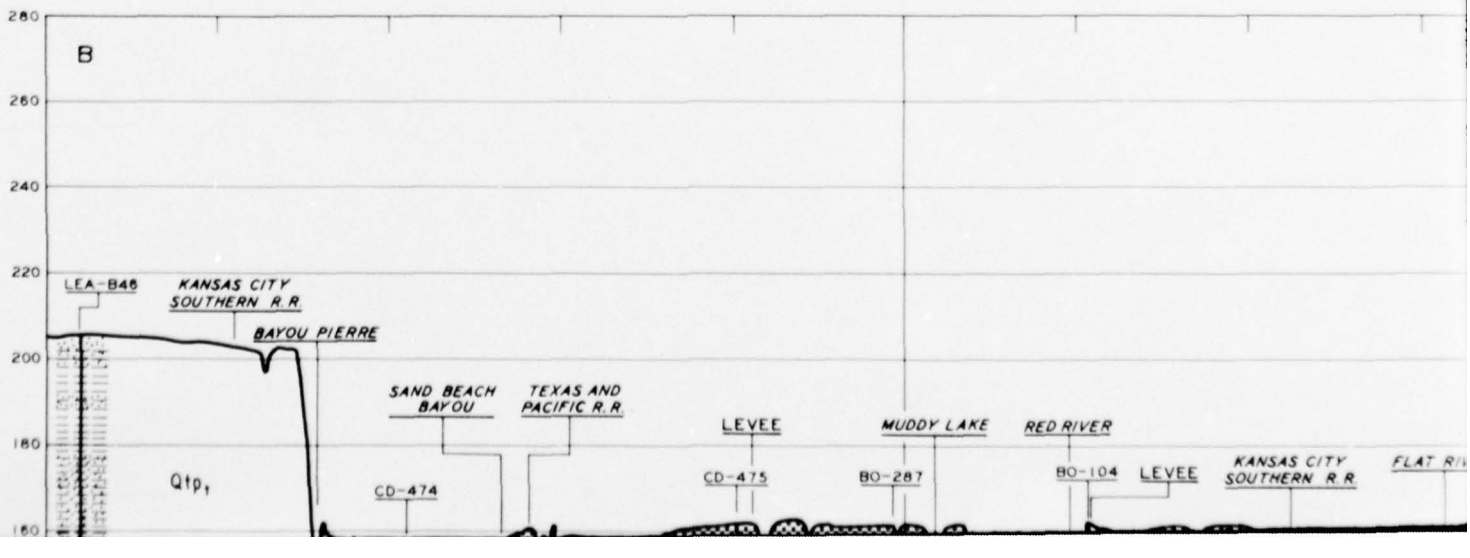
3

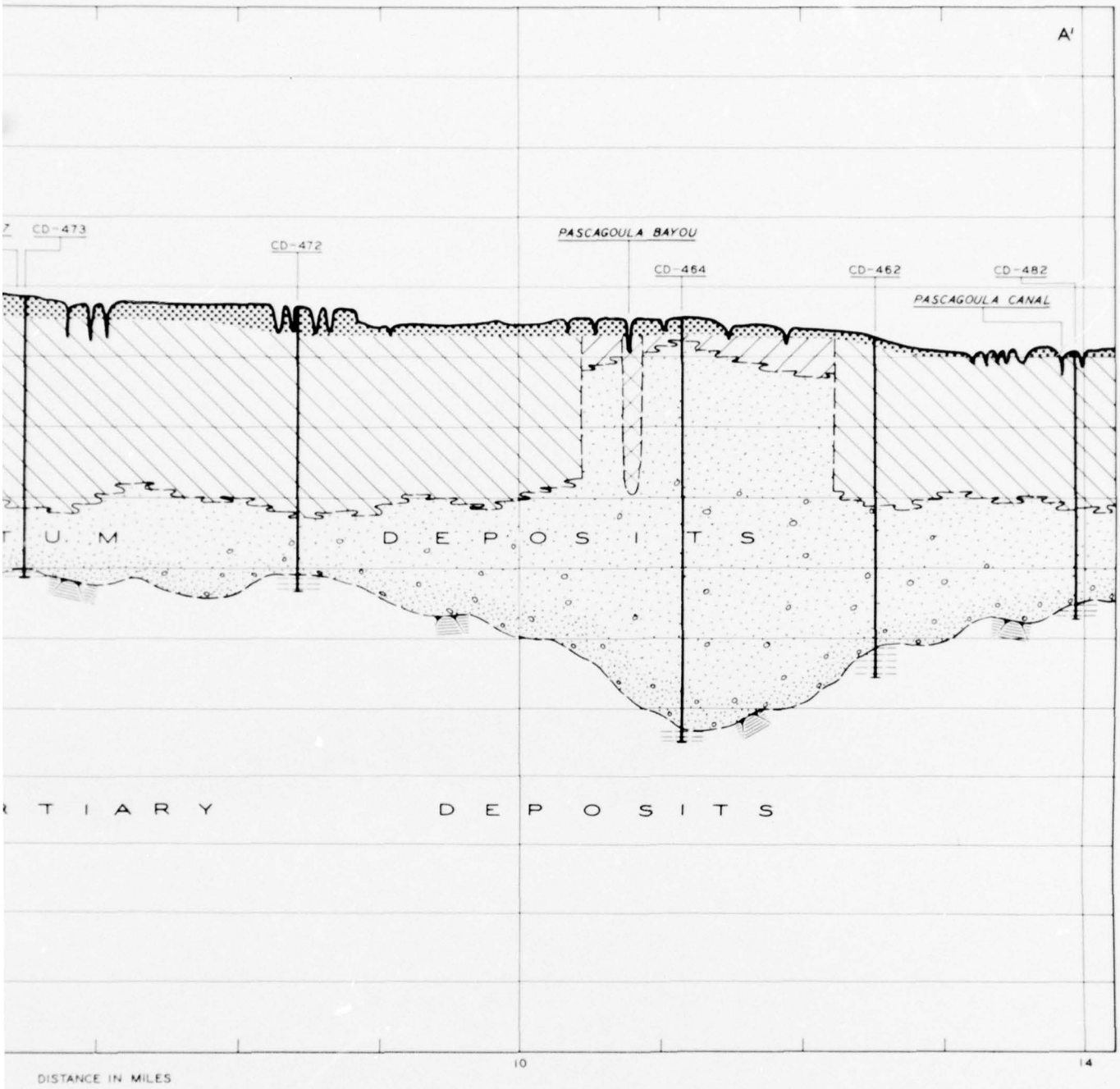


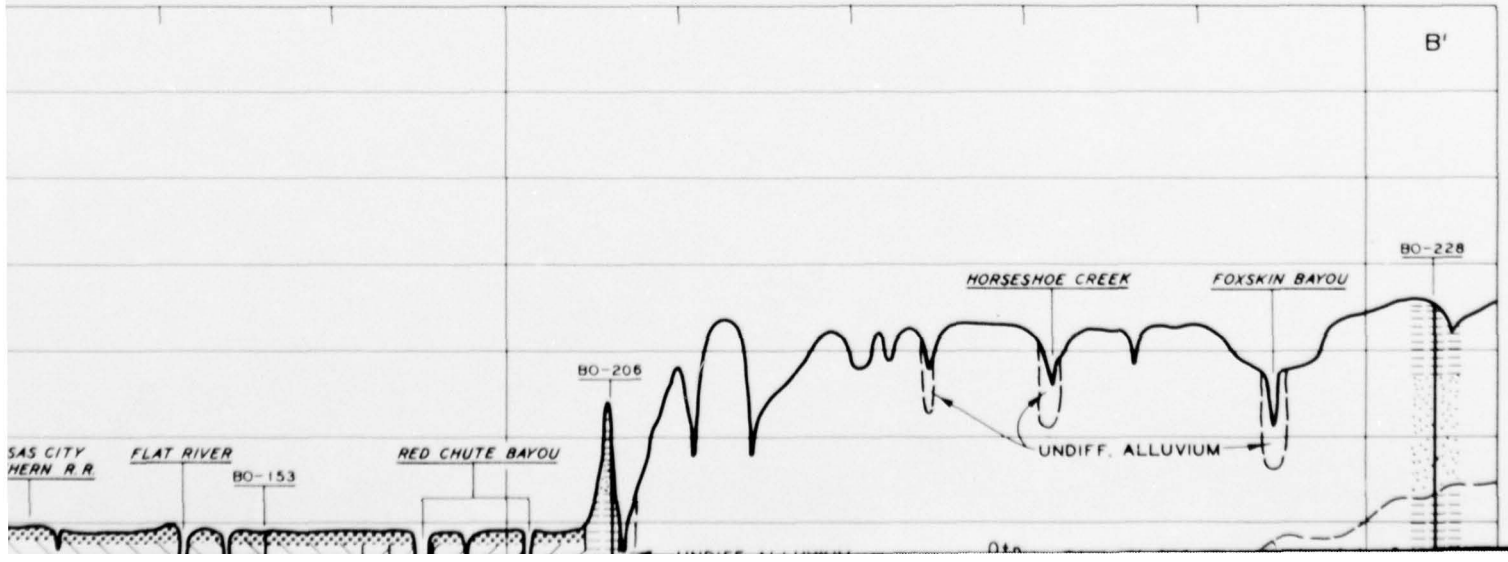
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
CASPIANA, LA.

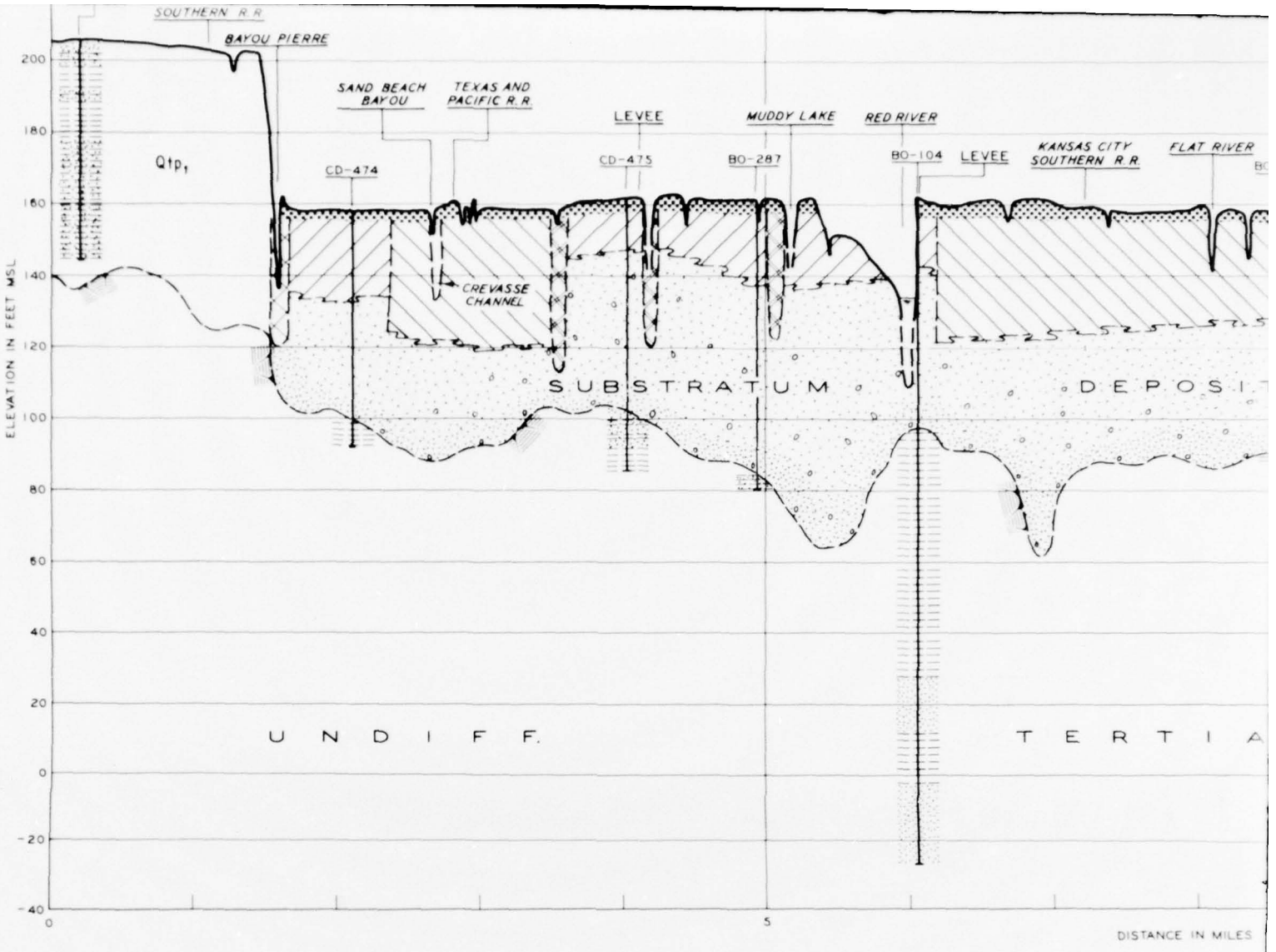
4


A
LEVEE
LAYS BAYOU
RED RIVER
LEVEE
LA HWY 7
CD-473
BO-221
US HWY 71
BO-136
ELEVATION IN FEET MSL
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
-40
-60
S U B S T R A T U M
LIGNITE
U N D I F F.
T E R T I A R
0
5
DISTANCE IN MILE


B
280
260
240
220
200
180
160
LEA-B48
KANSAS CITY SOUTHERN R.R.
BAYOU PIERRE
SAND BEACH BAYOU
TEXAS AND PACIFIC R.R.
LEVEE
MUDDY LAKE
RED RIVER
Qtp1
CD-474
CD-475
BO-287
BO-104
LEVEE
KANSAS CITY SOUTHERN R.R.
FLAT RI


A'
CD-473
CD-472
PASCAGOULA BAYOU
CD-464
CD-462
CD-482
PASCAGOULA CANAL
U. M D E P O S I T S
T I A R Y D E P O S I T S
10
14
DISTANCE IN MILES


B'
BO-228
HORSESHOE CREEK
FOXSKIN BAYOU
BO-206
UNDIFF. ALLUVIUM
SAS CITY
HERN R.R.
FLAT RIVER
BO-153
RED CHUTE BAYOU



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

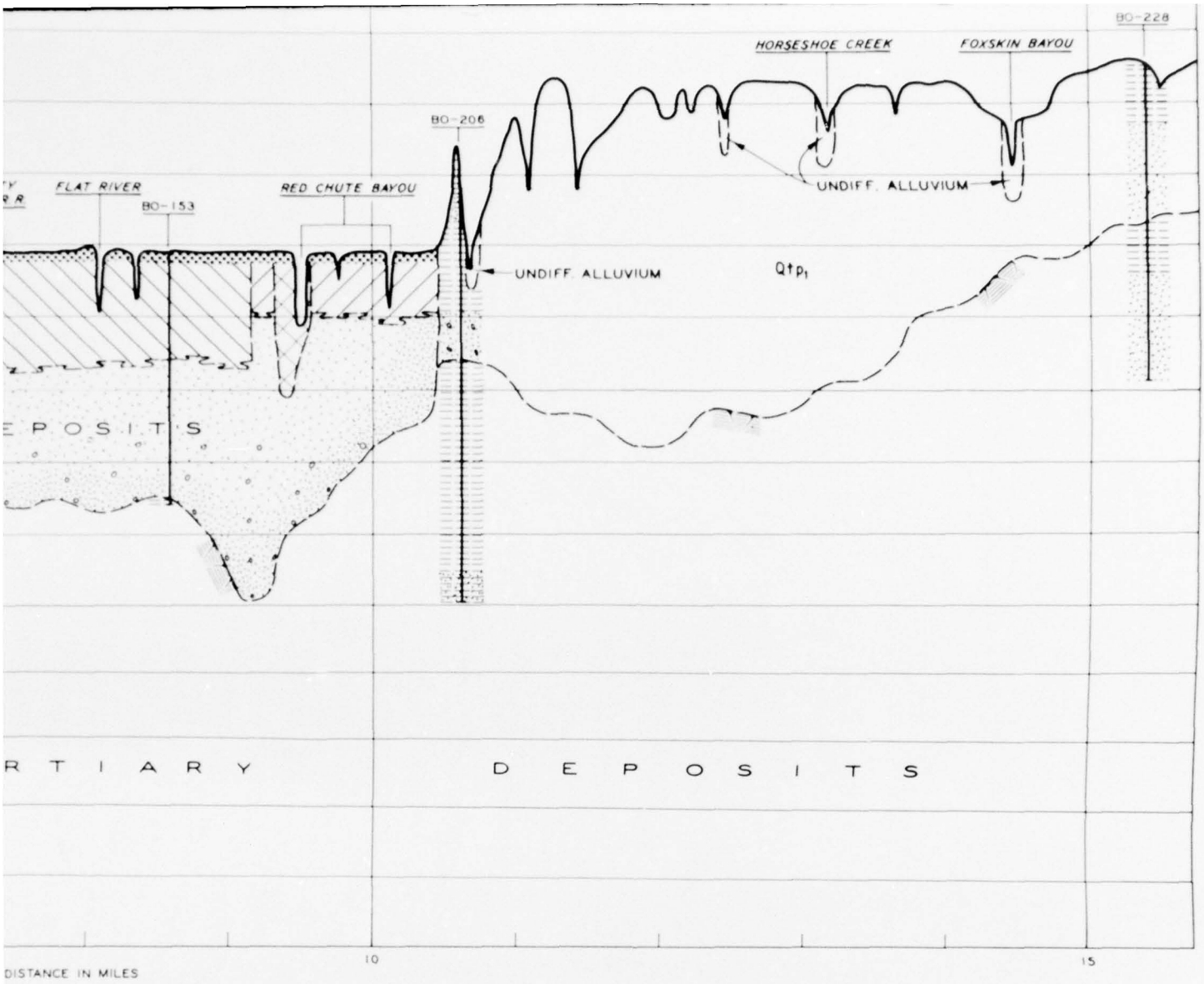
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SANDY CLAY
- SHALE

MAPPING SYMBOLS

- Qtp1 — PRAIRIE TERRACE-UPPER SURFACE
- Pwld — WILCOX GROUP DEPOSITS (DOLET HILLS FORMATION)

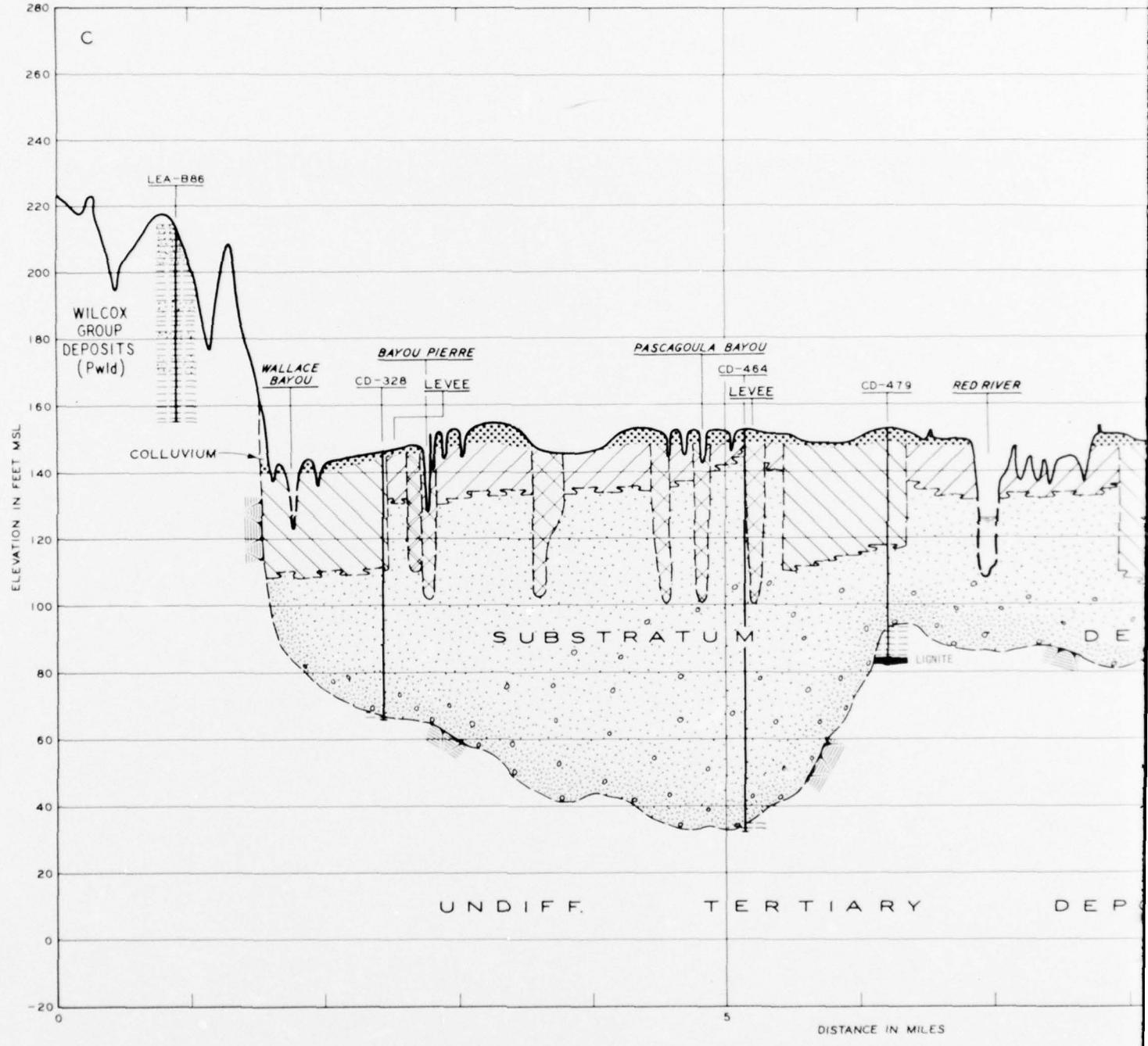


GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

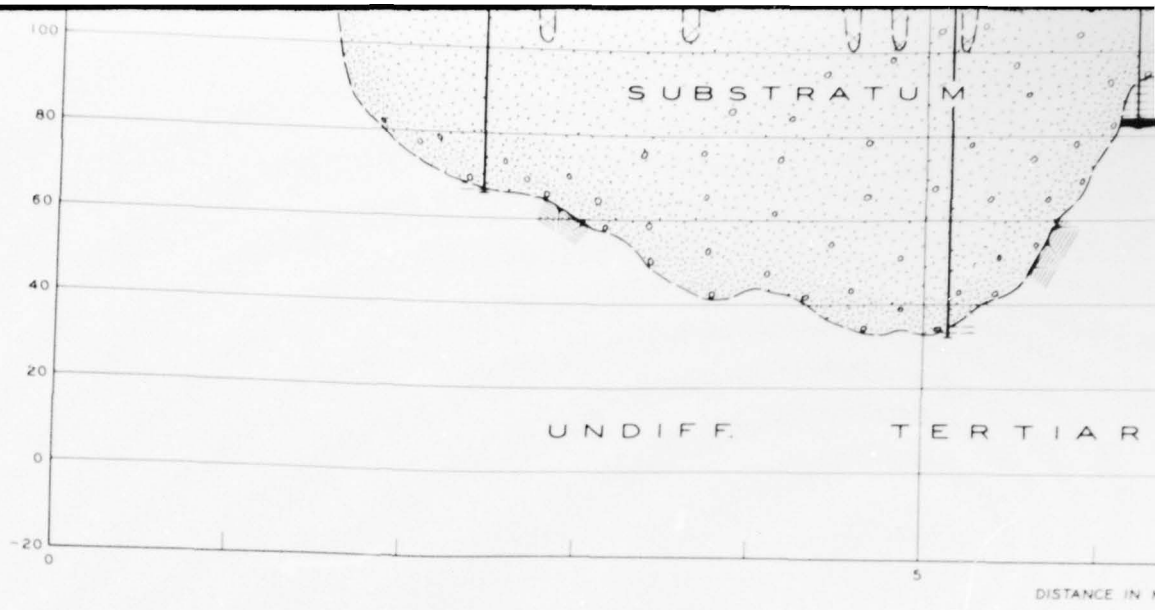
SECTIONS A-A' AND B-B'

CASPIANA, LA.

4


C
LEA-B86
WILCOX GROUP DEPOSITS (Pwld)
COLLUVIUM
WALLACE BAYOU
BAYOU PIERRE
CD-328
LEVEE
PASCAGOULA BAYOU
CD-464
LEVEE
CD-479
RED RIVER
SUBSTRATUM
LIGNITE
UNDIFF. TERTIARY DEP
ELEVATION IN FEET MSL
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
0
5
DISTANCE IN MILES


C'
BAYOU
D-464
LEVEE
CD-479
RED RIVER
FLAT RIVER
BO-150
BO-288
RED CHUTE BAYOU
RAFT BAYOU
Qtp1
COLLUVIUM
M
DEPOSITS
LIGNITE
ERTIARY
DEPOSITS
5
10
12
DISTANCE IN MILES



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

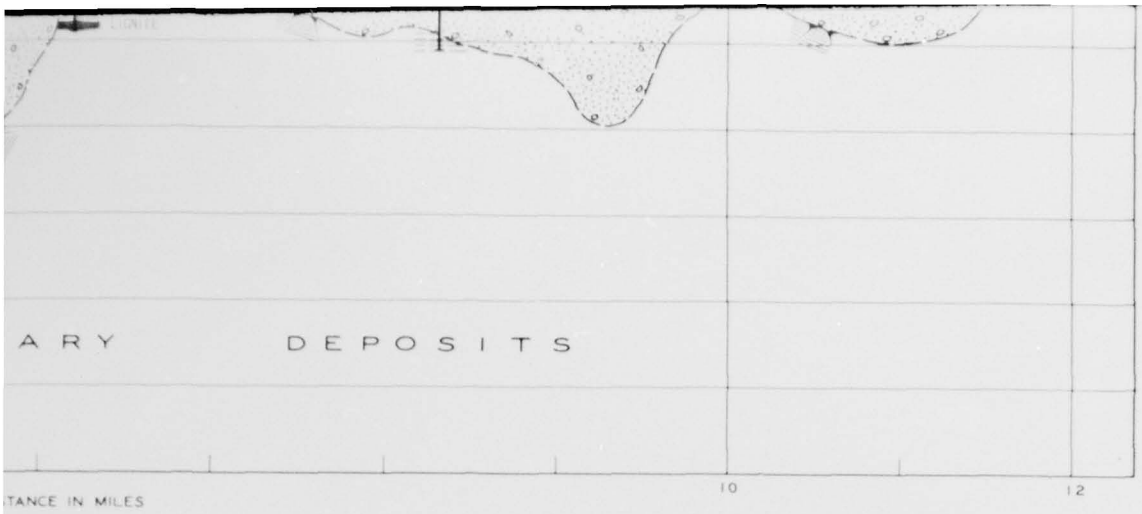
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SANDY CLAY
- SHALE

MAPPING SYMBOLS

- Qtp$_u$ — PRAIRIE TERRACE-UPPER SURFACE
- Pwld — WILCOX GROUP DEPOSITS (DOLET HILLS FORMATION)



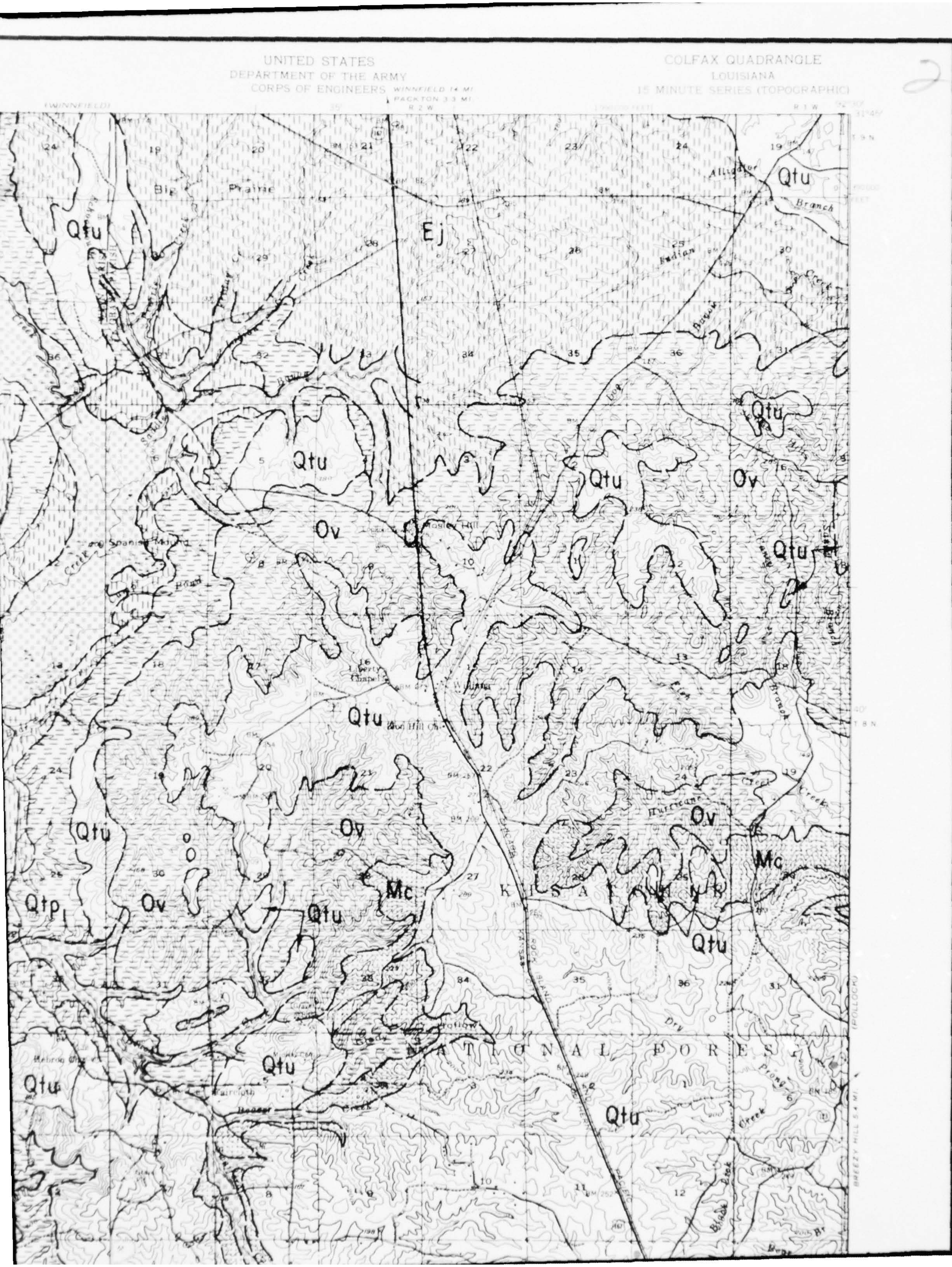
GEOLOGICAL INVESTIGATION
LOWER RED RIVER – ATCHAFALAYA BASIN AREA

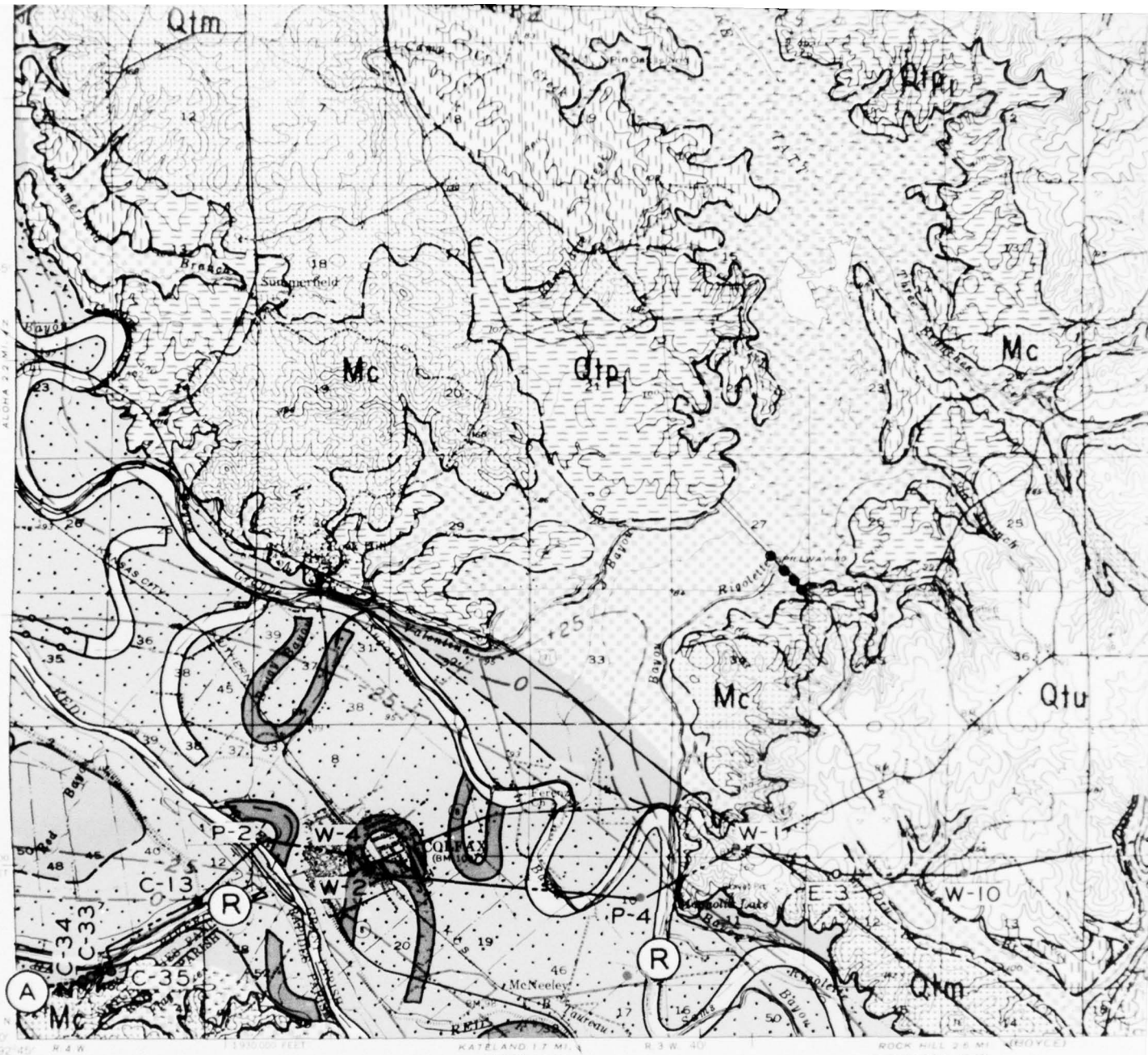
SECTION C–C'

CASPIANA, LA.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE


UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
COLFAX QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)
WINNFIELD 14 MI.
PACKTON 3.3 MI.
(WINNFIELD)
R 2 W
R 1 W
T 9 N
T 8 N
31°45'
Big Prairie
Alligator Branch
Indian Branch
Spanish Mound
Pond
Mosley Hill
Liberty Chapel
Hurricane
Creek
Dry Prong
Black Creek
Fairchild
Hebron
K I S A T C H I E
N A T I O N A L F O R E S T
(POLLOCK)
BREEZY HILL 5.4 MI.
Ej
Qtu
Ov
Mc
Qtp



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL CREEKS

PLEISTOCENE

- Qtp1 PRAIRIE TERRACE-UPPER SURFACE
- Qtp2 PRAIRIE TERRACE-LOWER SURFACE
- Qtm MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE

TERTIARY

MIOCENE

- Mc CATAHOULA FORMATION

OLIGOCENE

- Ov VICKSBURG GROUP

EOCENE

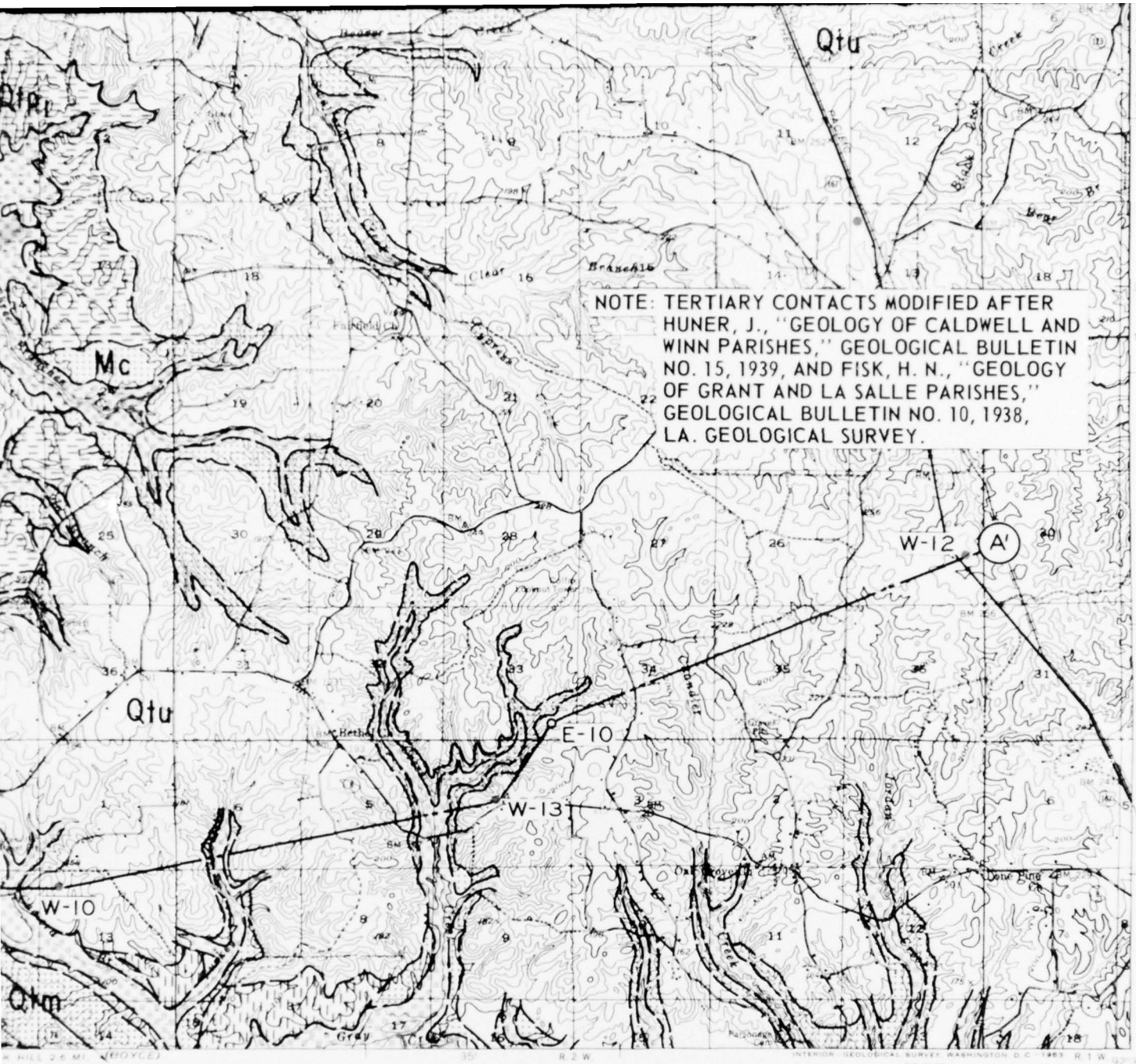
- Je Jackson Group

(R) RED RIVER

- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED COURSE REWORKED BY SUBSEQUENT MEANDERING OF A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY

3

COLFAX (a)



SCALE 1:62500

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

OF ABANDONED COURSE
QUENT MEANDERING OF

OF TERTIARY
L

GED BY SOILS SCIENTIST)
RIED TERTIARY SURFACE

GED BY SOILS SCIENTIST)
ARY

LOGGED BY SOILS SCIENTIST)
RIED TERTIARY SURFACE

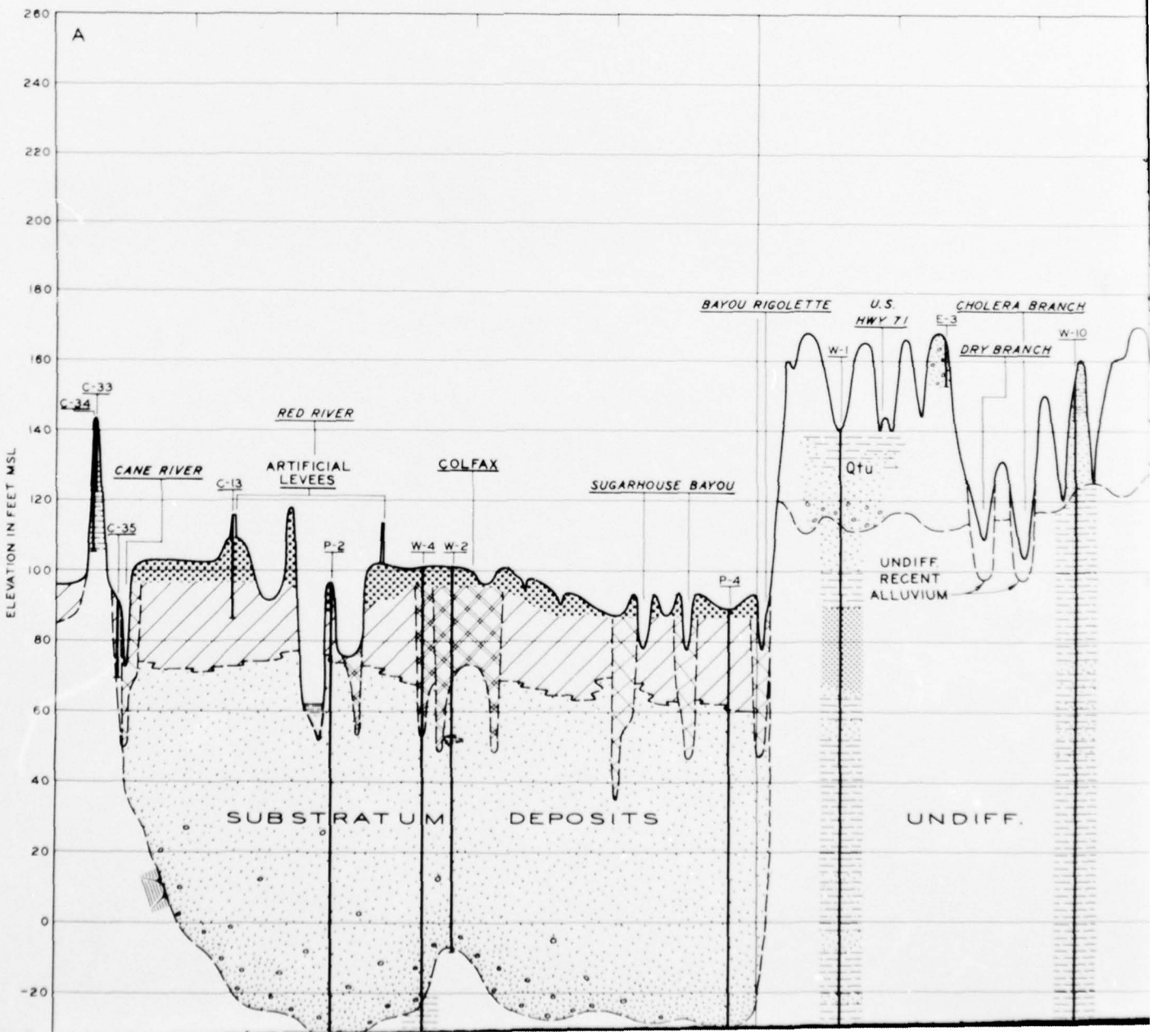
LOGGED BY SOILS SCIENTIST)
ARY

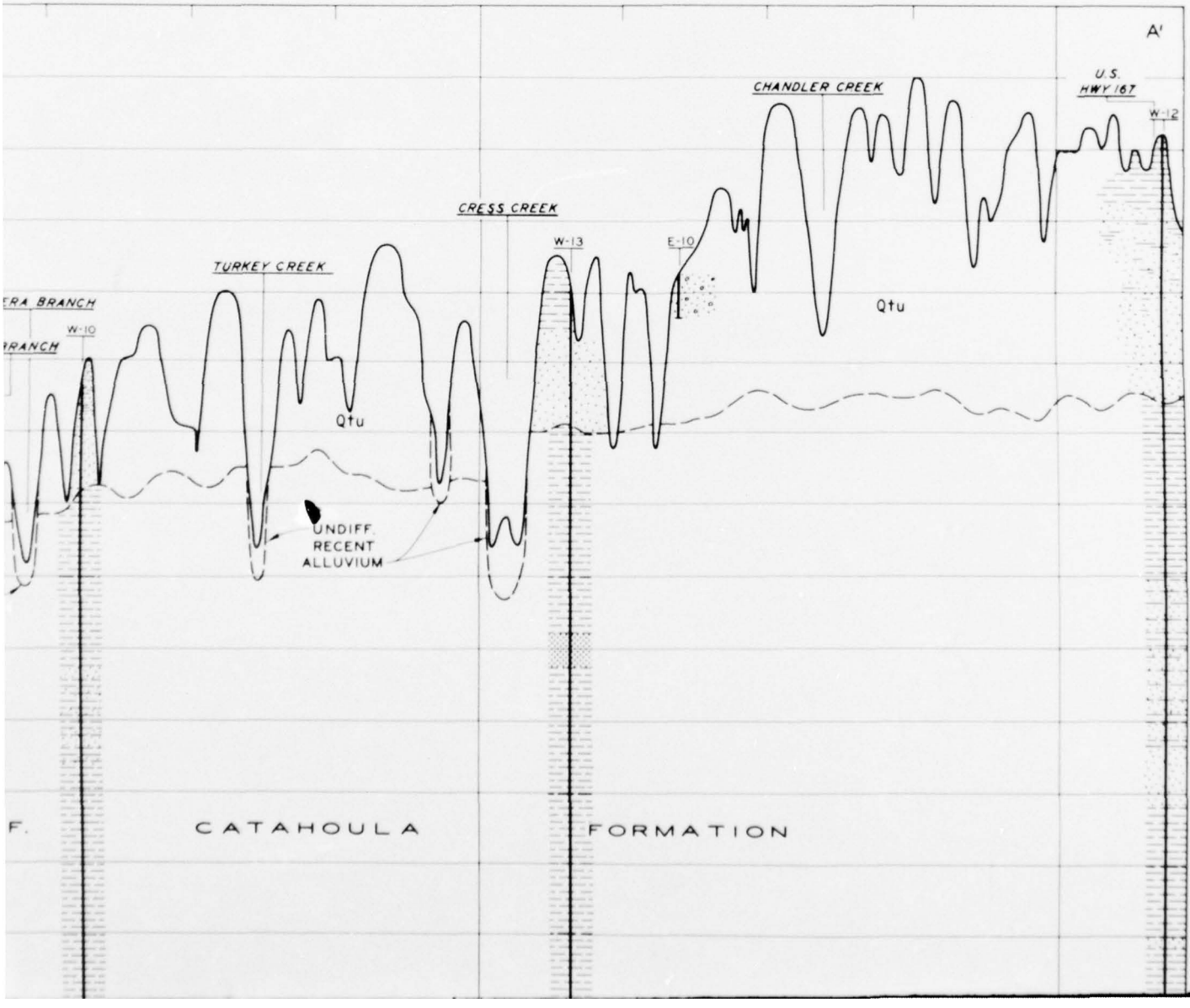
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

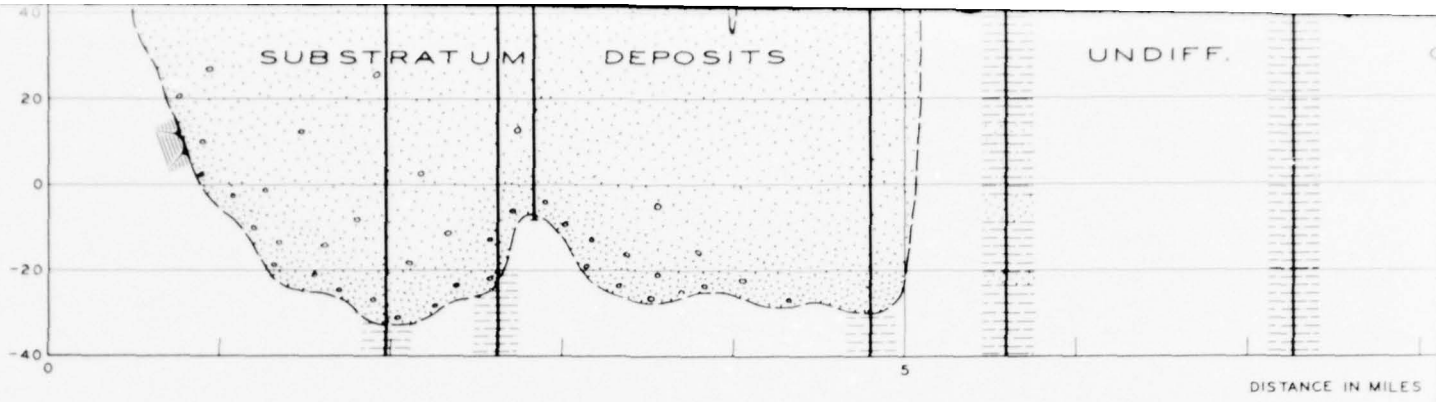
DISTRIBUTION OF ALLUVIAL DEPOSITS

COLFAX, LA.

4


A
ELEVATION IN FEET MSL
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
C-33
C-34
C-35
C-13
P-2
W-4
W-2
P-4
W-1
E-3
W-10
CANE RIVER
RED RIVER
ARTIFICIAL LEVEES
COLFAX
SUGARHOUSE BAYOU
BAYOU RIGOLETTE
U.S. HWY 71
CHOLERA BRANCH
DRY BRANCH
Qtu
UNDIFF. RECENT ALLUVIUM
SUBSTRATUM DEPOSITS
UNDIFF.


A'
CHANDLER CREEK
U.S. HWY 167
W-12
CRESS CREEK
W-13
E-10
TURKEY CREEK
W-10
ERA BRANCH
RANCH
Qtu
Qtu
UNDIFF. RECENT ALLUVIUM
F.
CATAHOULA
FORMATION



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- ABANDONED CHANNEL
- ABANDONED COURSE

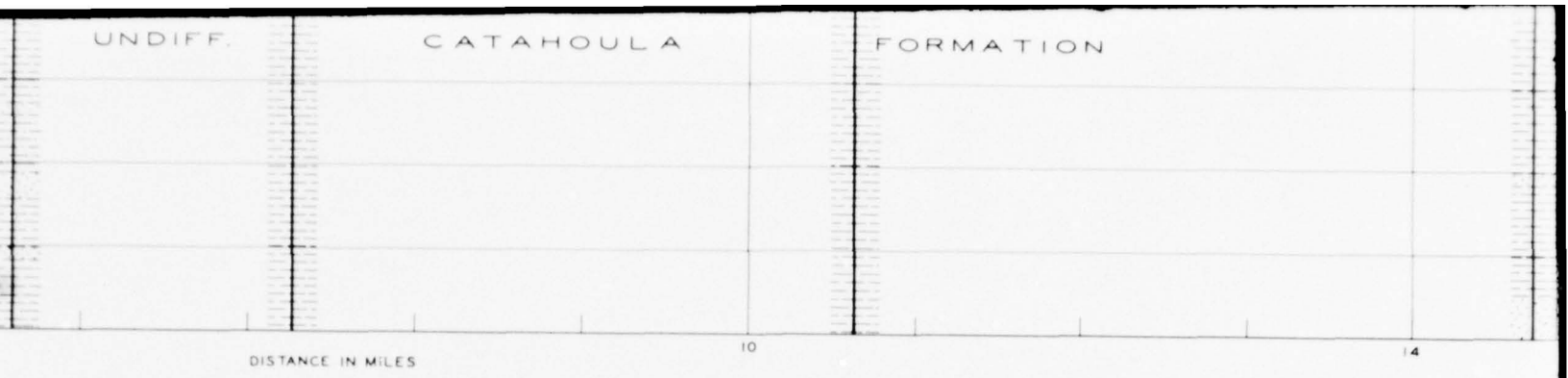
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SANDSTONE
- SHALE
- SILTSTONE
- SAND AND GRAVEL

MAPPING SYMBOLS

- Qtu UNDIFFERENTIATED TERRACE



GEOLOGICAL INVESTIGATION
LOWER RED RIVER – ATCHAFALAYA BASIN AR

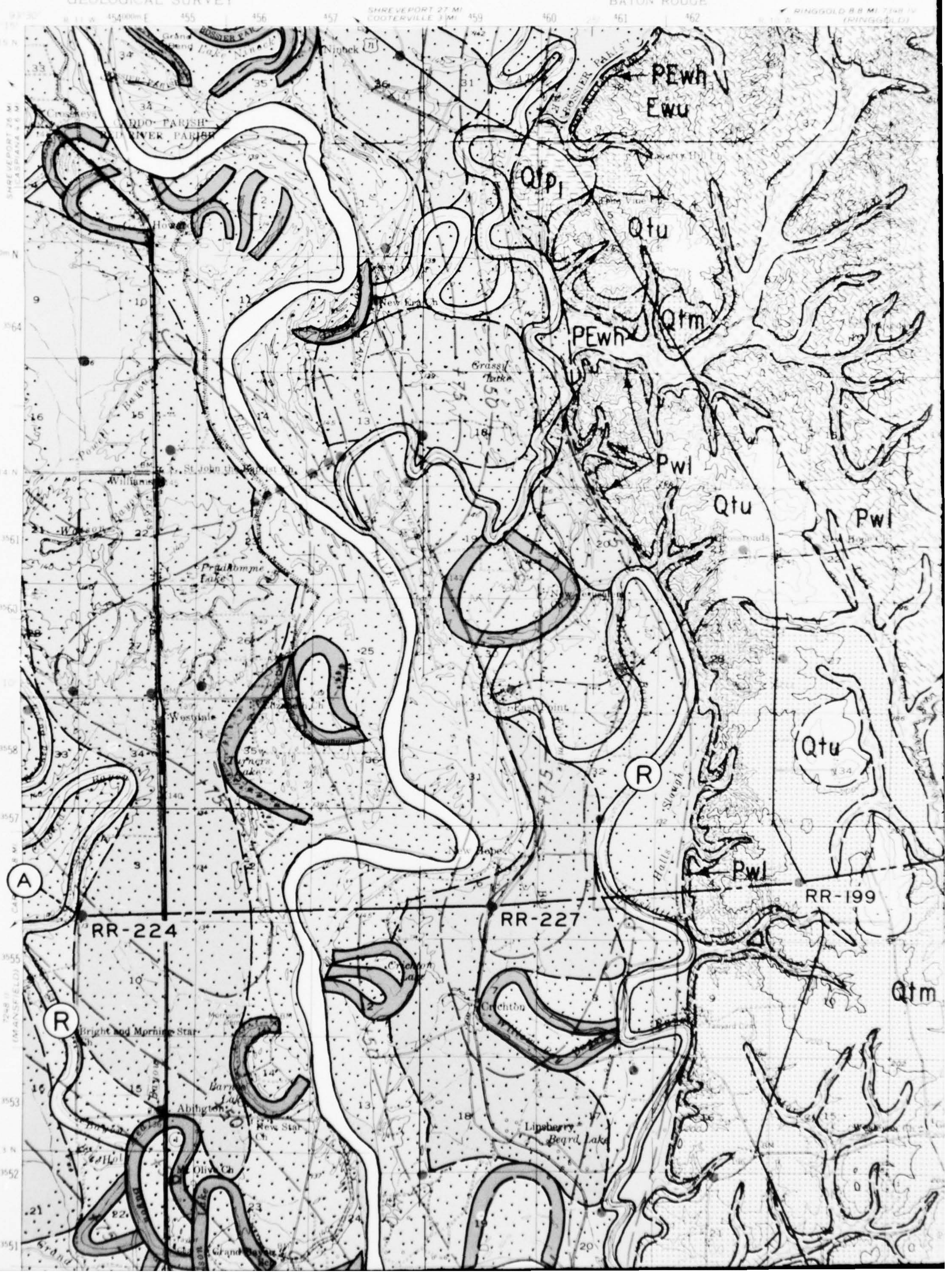
SECTION A – A'

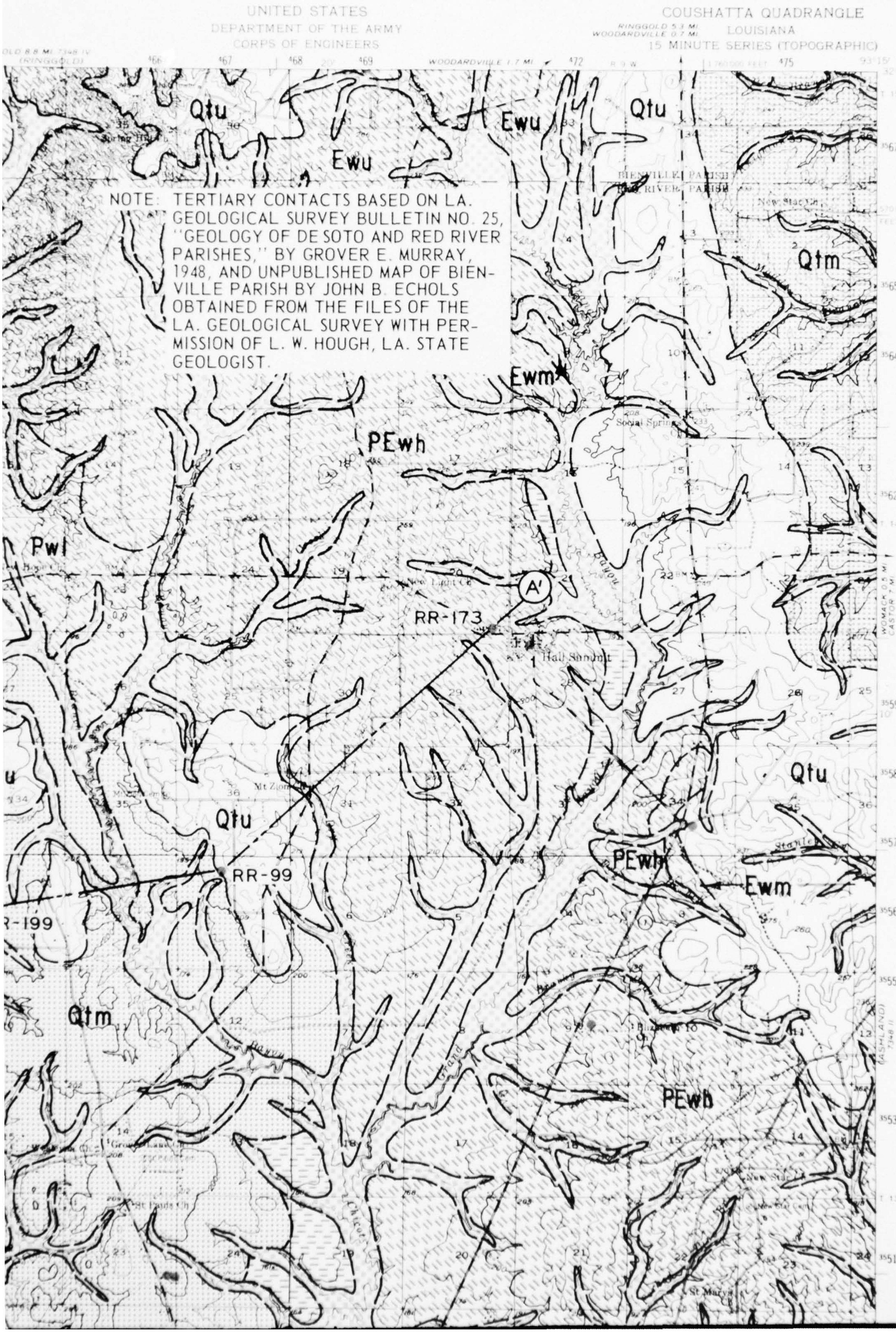
COLFAX, LA.

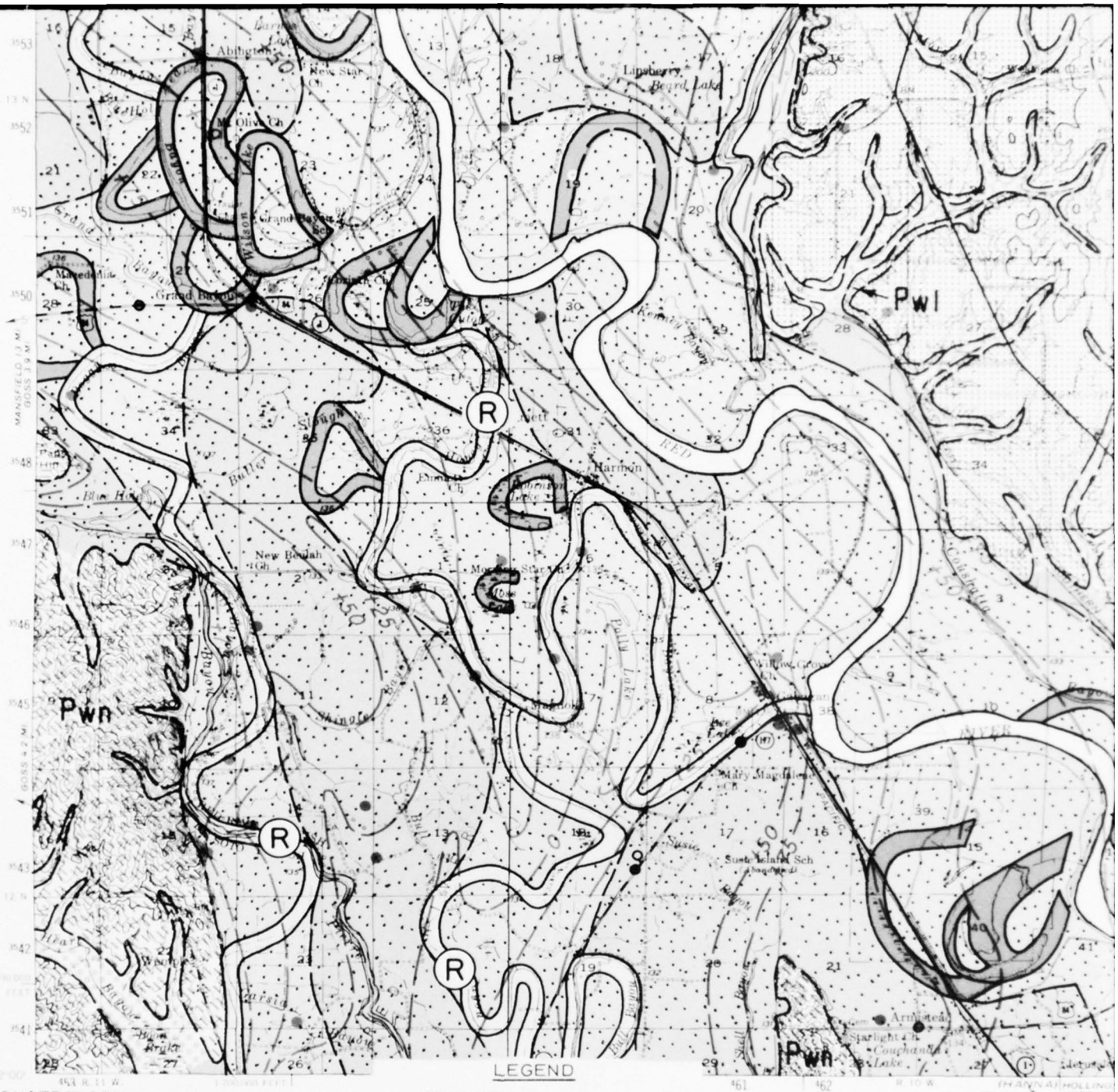
4

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE




UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
COUSHATTA QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)
NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 25, "GEOLOGY OF DE SOTO AND RED RIVER PARISHES," BY GROVER E. MURRAY, 1948, AND UNPUBLISHED MAP OF BIENVILLE PARISH BY JOHN B. ECHOLS OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
Qtu
Ewu
Qtm
Ewm
PEwh
Pwl
A'
RR-173
RR-99
R-199
BIENVILLE PARISH
RED RIVER PARISH
Hall Summit
Social Springs
Mt Zion
New Light Ch
Bayou
Grand
Chicot



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- QTp — PRAIRIE TERRACE-UPPER SURFACE
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

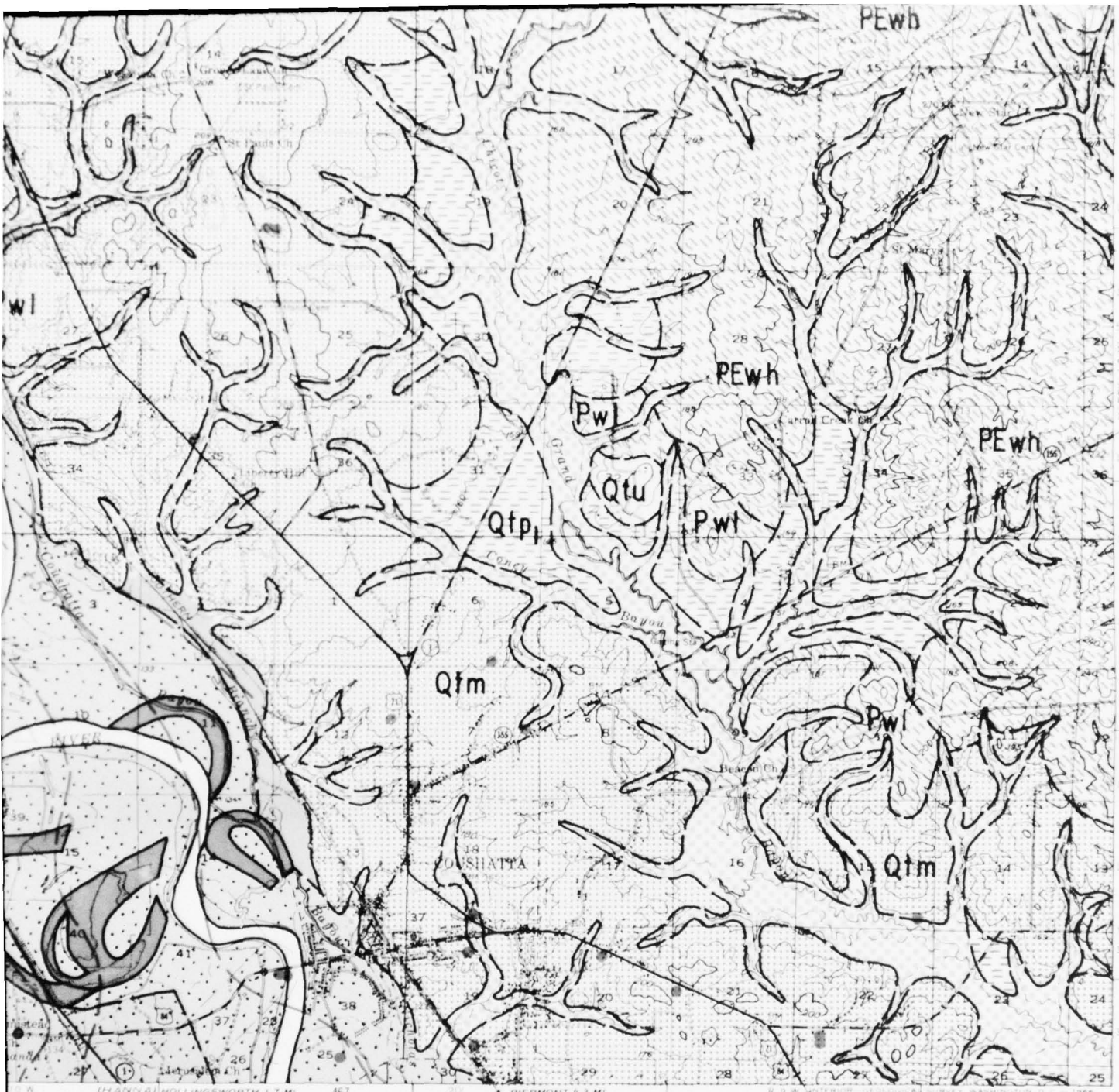
TERTIARY

EOCENE-PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED
- Ewm — MARTHAVILLE FORMATION
- PEwh — HALL SUMMIT FORMATION
- Pwl — LOGANSPORT FORMATION (AFTER MURRAY-INCLUDES LIME HILL, COW BAYOU, AND DOLET HILLS MEMBERS IN RED RIVER PARISH)
- Pwn — NABORTON FORMATION

- (R) — RED RIVER
- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIENT USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS II BORING (NOT LOGGED BY SOILS SCIENT NOT REACHING TERTIARY

3



OF TERTIARY
L

GED BY SOILS SCIENTIST)
URIED TERTIARY SURFACE

GED BY SOILS SCIENTIST)
ARY

LOGGED BY SOILS SCIENTIST)
URIED TERTIARY SURFACE

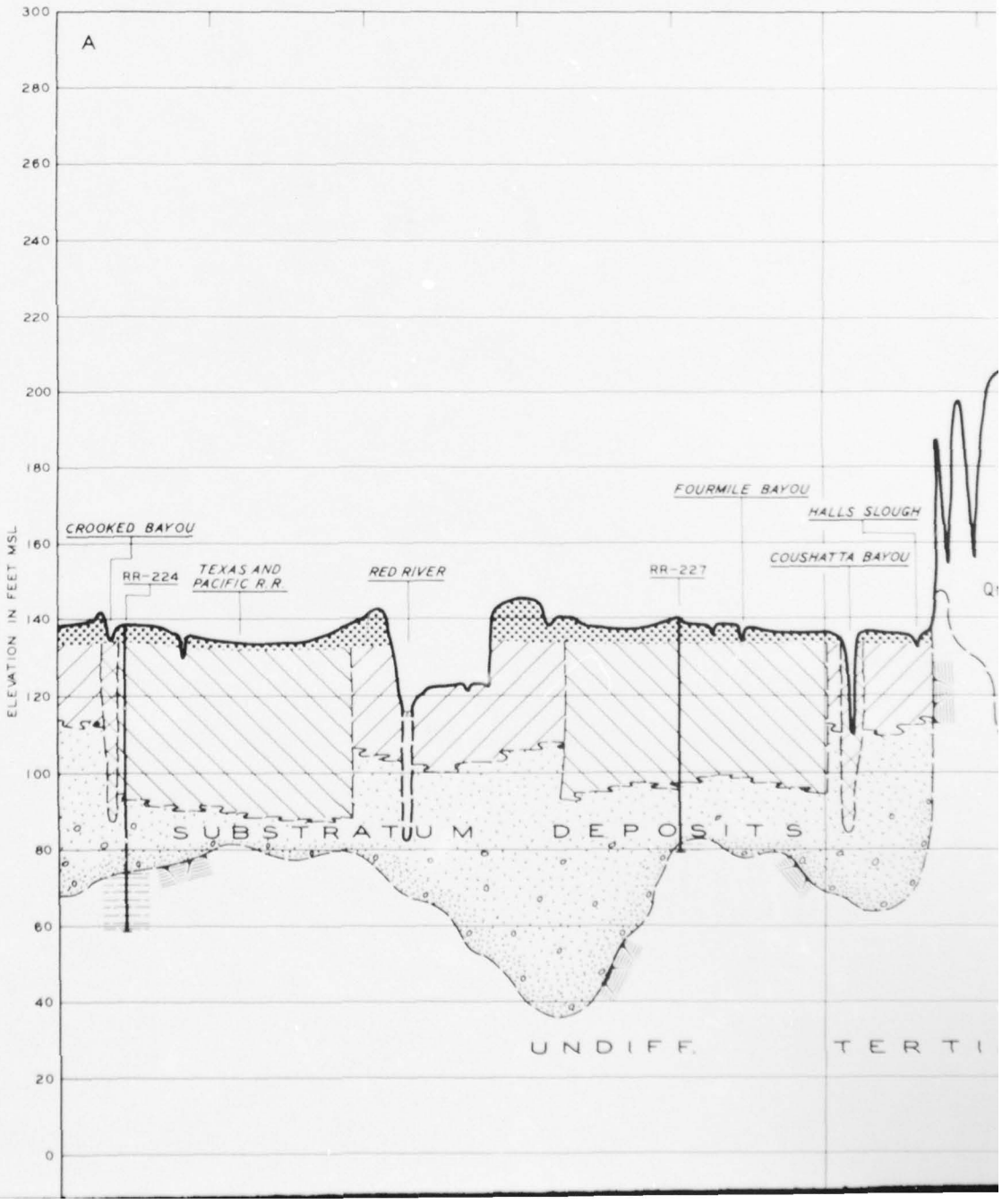
LOGGED BY SOILS SCIENTIST)
ARY

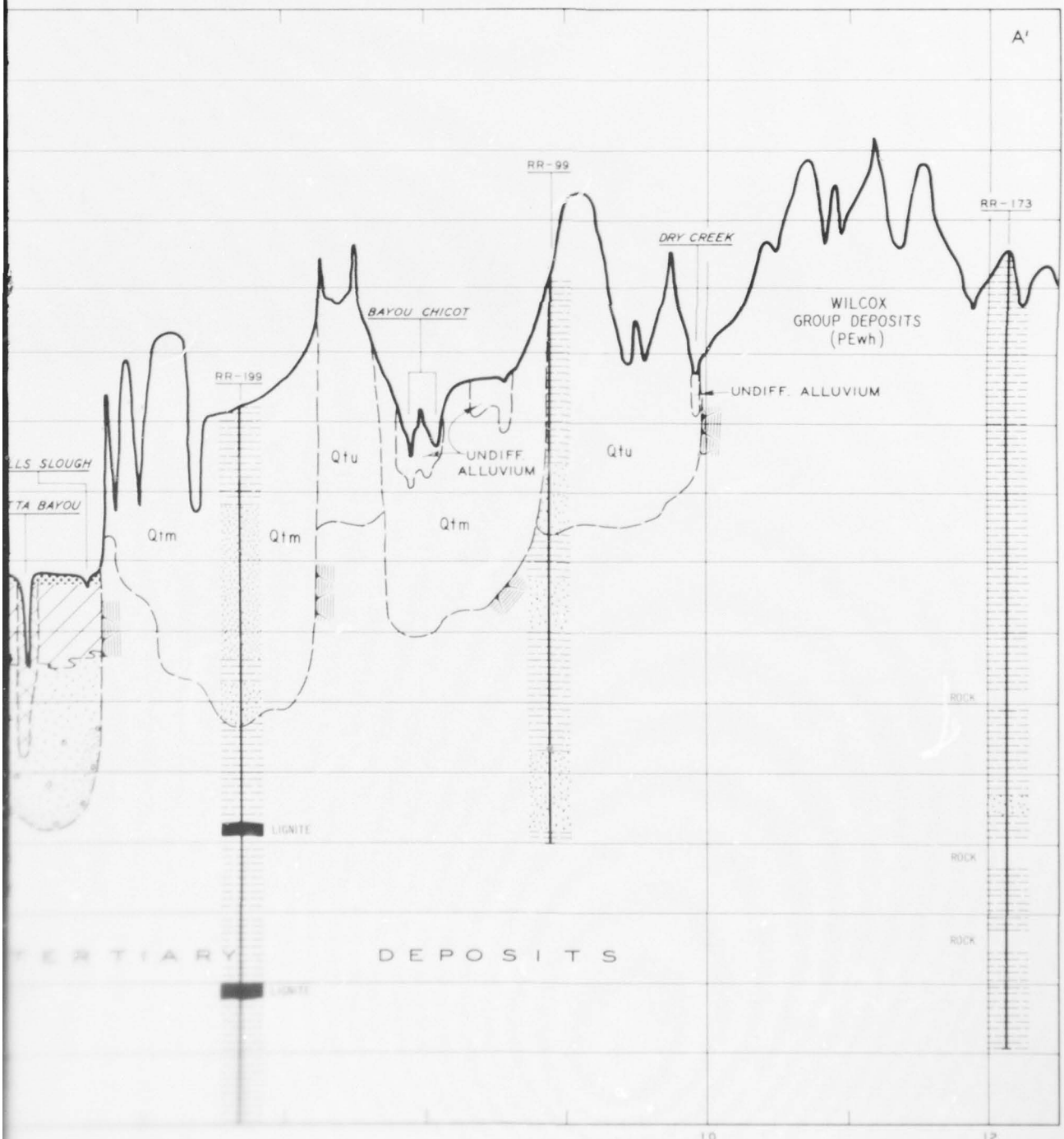
GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

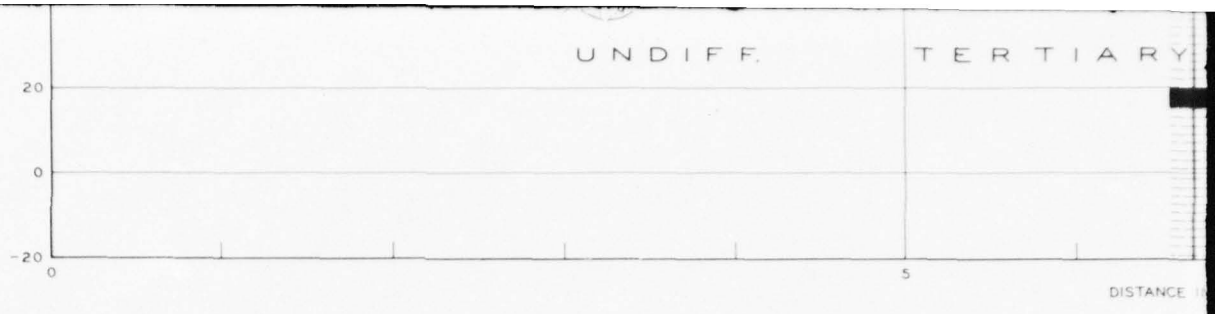
DISTRIBUTION OF ALLUVIAL DEPOSITS

COUSHATTA, LA.

4


A
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
ELEVATION IN FEET MSL
CROOKED BAYOU
RR-224
TEXAS AND PACIFIC R.R.
RED RIVER
RR-227
FOURMILE BAYOU
HALLS SLOUGH
COUSHATTA BAYOU
SUBSTRATUM DEPOSITS
UNDIFF.
TERTI


A'
RR-99
RR-173
DRY CREEK
BAYOU CHICOT
WILCOX
GROUP DEPOSITS
(PEwh)
RR-199
UNDIFF. ALLUVIUM
Qtu
UNDIFF.
ALLUVIUM
Qtu
LLS SLOUGH
TA BAYOU
Qtm
Qtm
Qtm
ROCK
LIGNITE
ROCK
ROCK
TERTIARY
DEPOSITS
LIGNITE
10
12



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

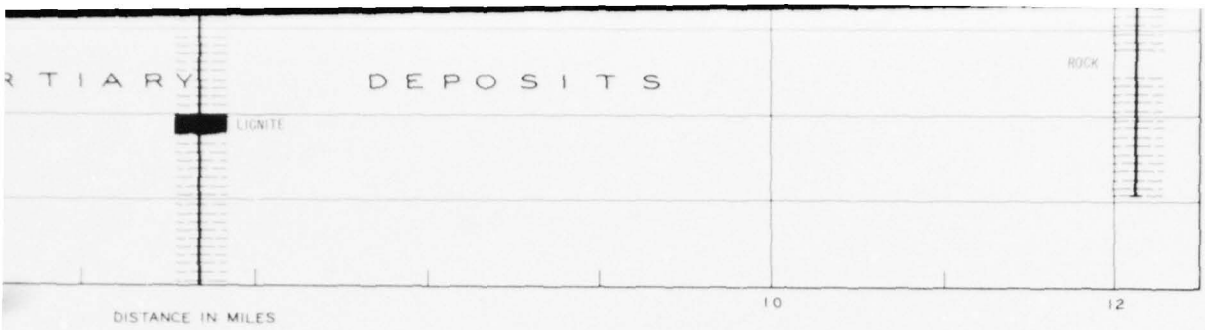
LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED PLEISTOCENE TERRACE
- P(wh) — WILCOX GROUP DEPOSITS (HALL SUMMIT FORMATION)

3



GEOLOGICAL INVESTIGATION
LOWER RED RIVER – ATCHAFALAYA BASIN AREA

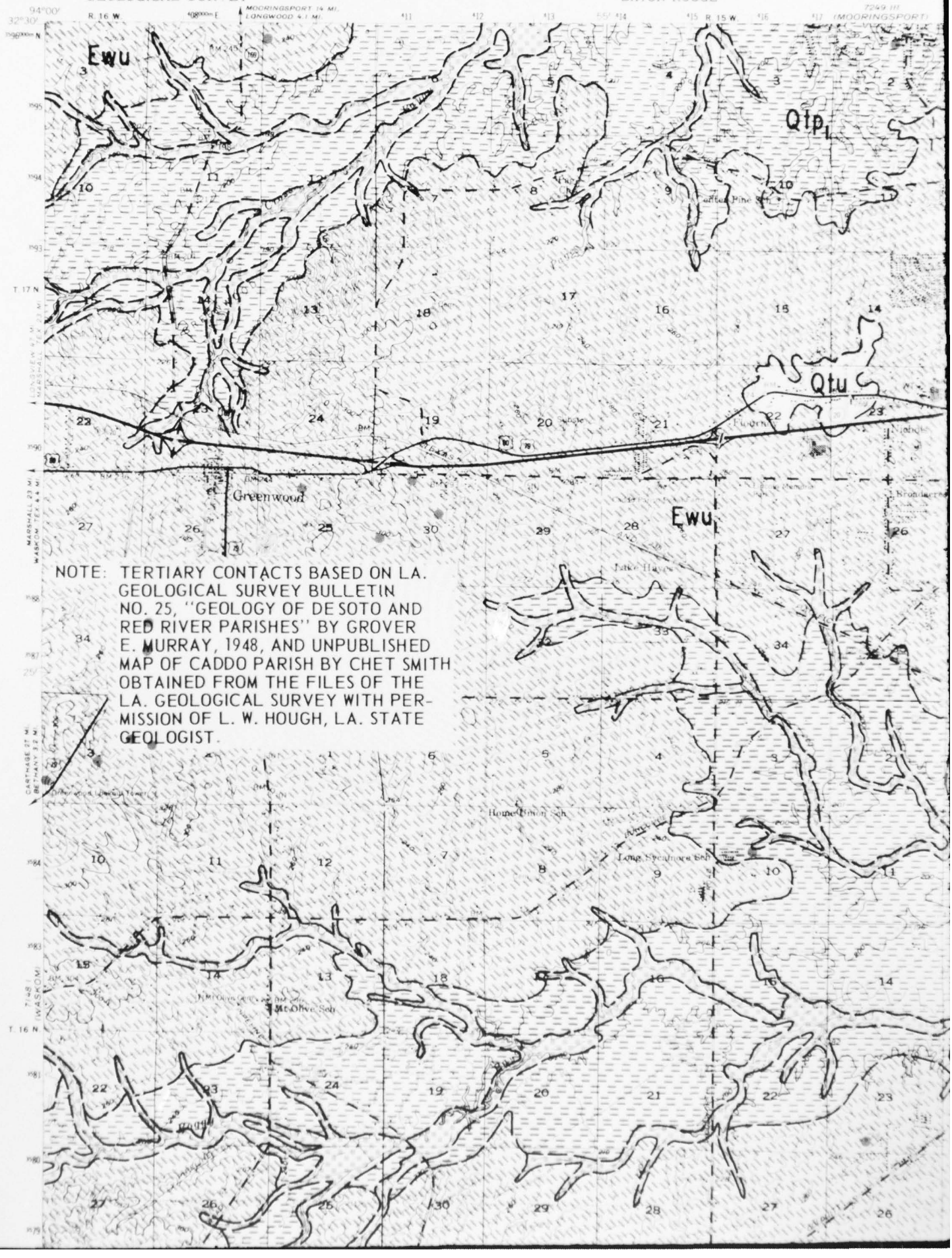
SECTION A–A′

COUSHATTA, LA.

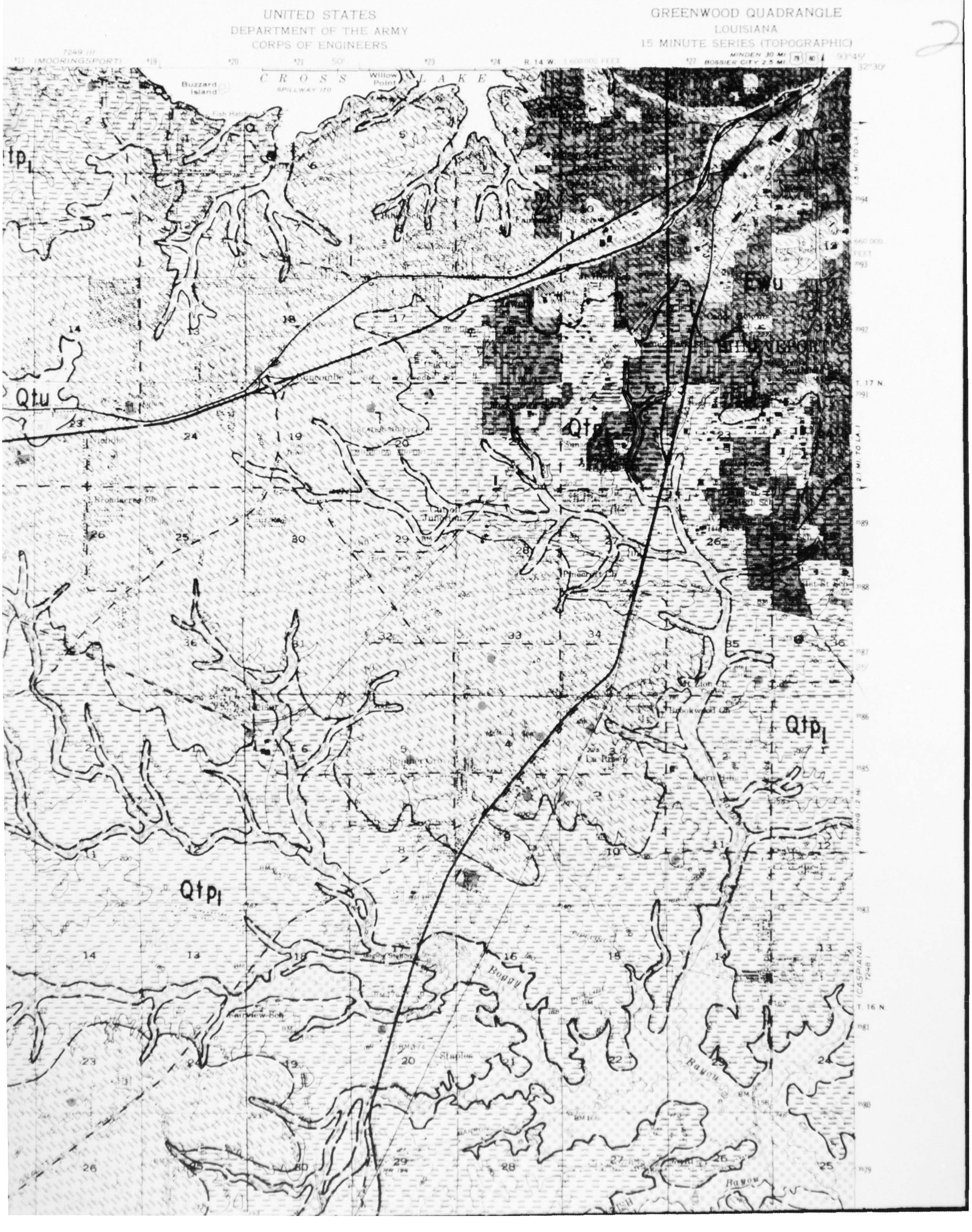
4

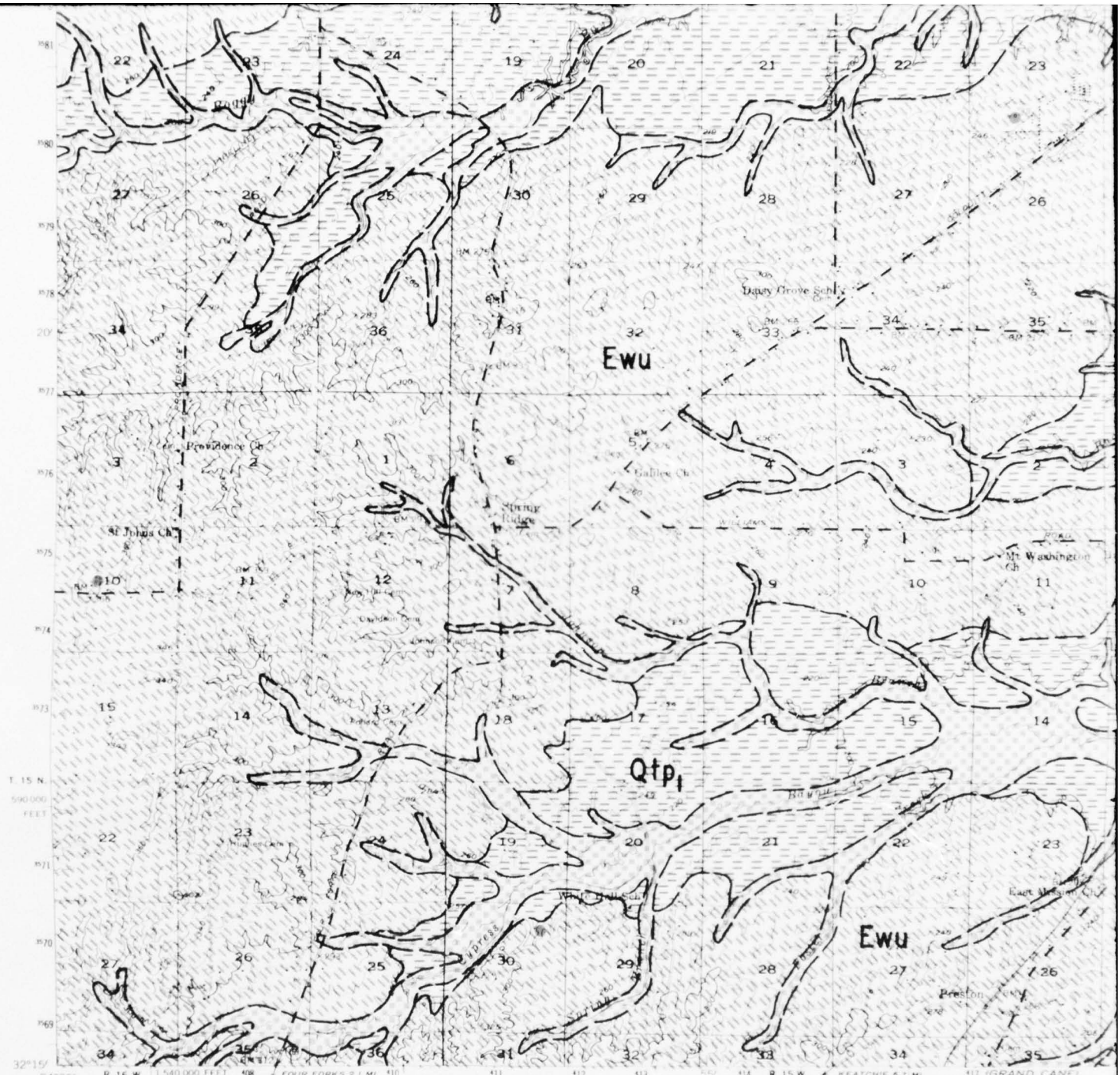
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE



NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 25, "GEOLOGY OF DE SOTO AND RED RIVER PARISHES" BY GROVER E. MURRAY, 1948, AND UNPUBLISHED MAP OF CADDO PARISH BY CHET SMITH OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.


UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
GREENWOOD QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)
(MOORINGSPORT)
MINDEN 30 MI
BOSSIER CITY 2.5 MI
93°45'
32°30'
R. 14 W.
CROSS LAKE
SPILLWAY 170
Buzzard Island
Willow Point
Qtp1
Qtu
Ewu
Qtp
Qtp1
Qtp1
T. 17 N
T. 16 N
Staples
Boggy
Bayou
Bayou
(CASPIANA)



LEGEND

QUATERNARY

RECENT

UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

Qtp — PRAIRIE TERRACE-UPPER SURFACE

Qtu — UNDIFFERENTIATED TERRACE

TERTIARY

EOCENE–PALEOCENE

Ewu — WILCOX GROUP UNDIFFERENTIATED

Tlrwlh — LOGANSPORT FORMATION (AFTER MURRAY–INCLUDES LIME HILL IN DESOTO PARISH)

INDEFINITE CONTACT

CONTACT

ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL

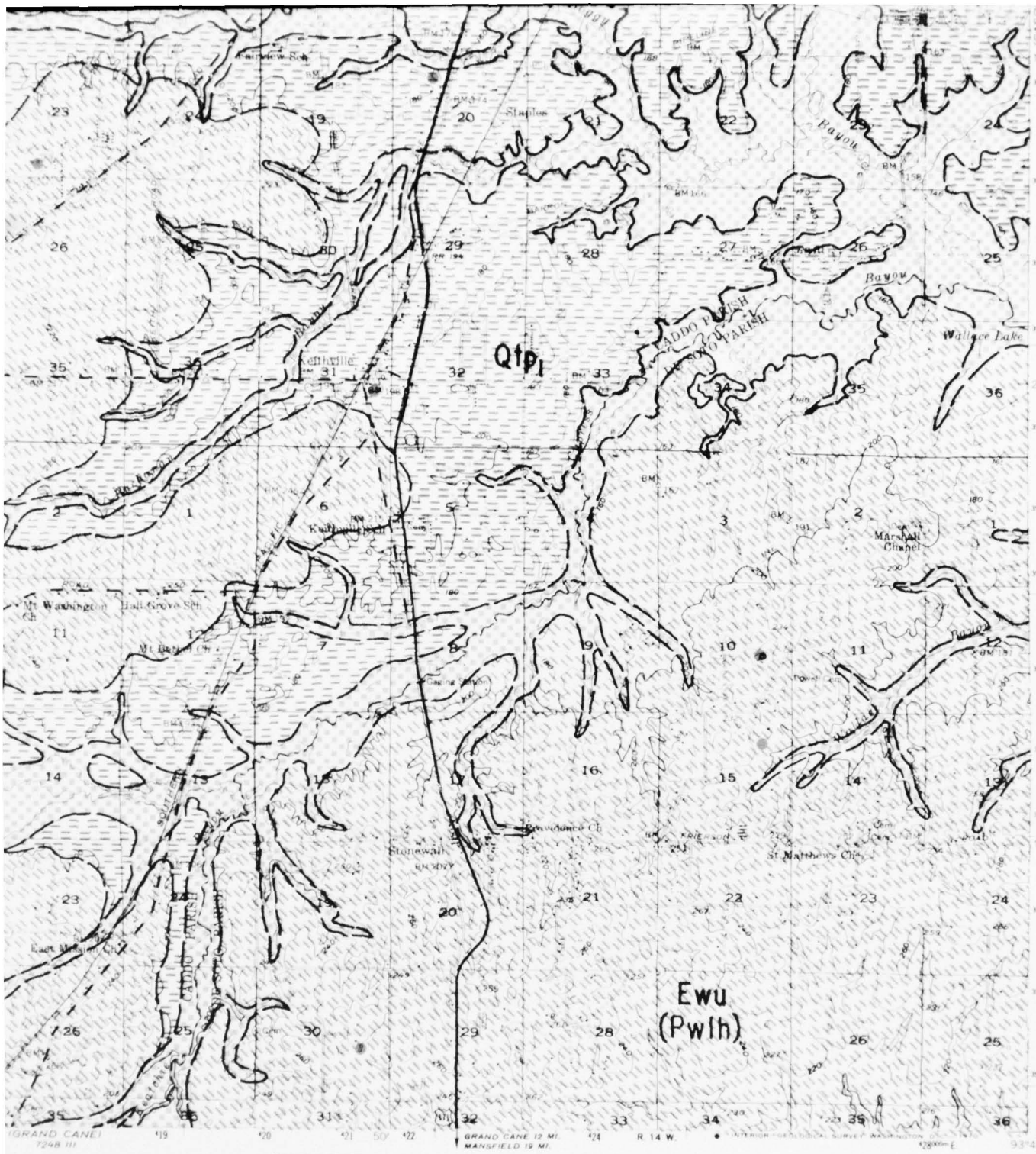
CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE

CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY

CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE

CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY

3

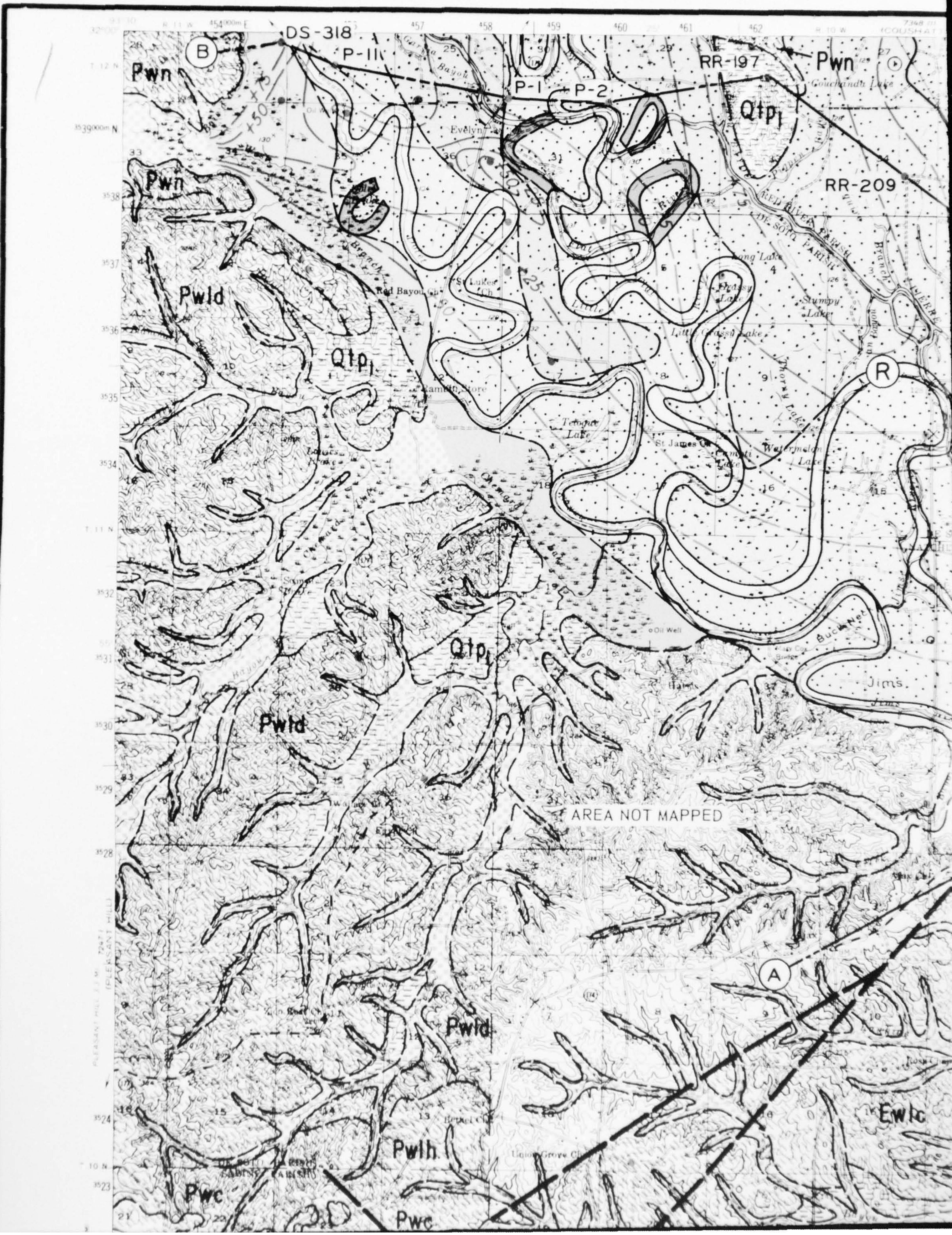


GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

DISTRIBUTION OF ALLUVIAL DEPOSITS

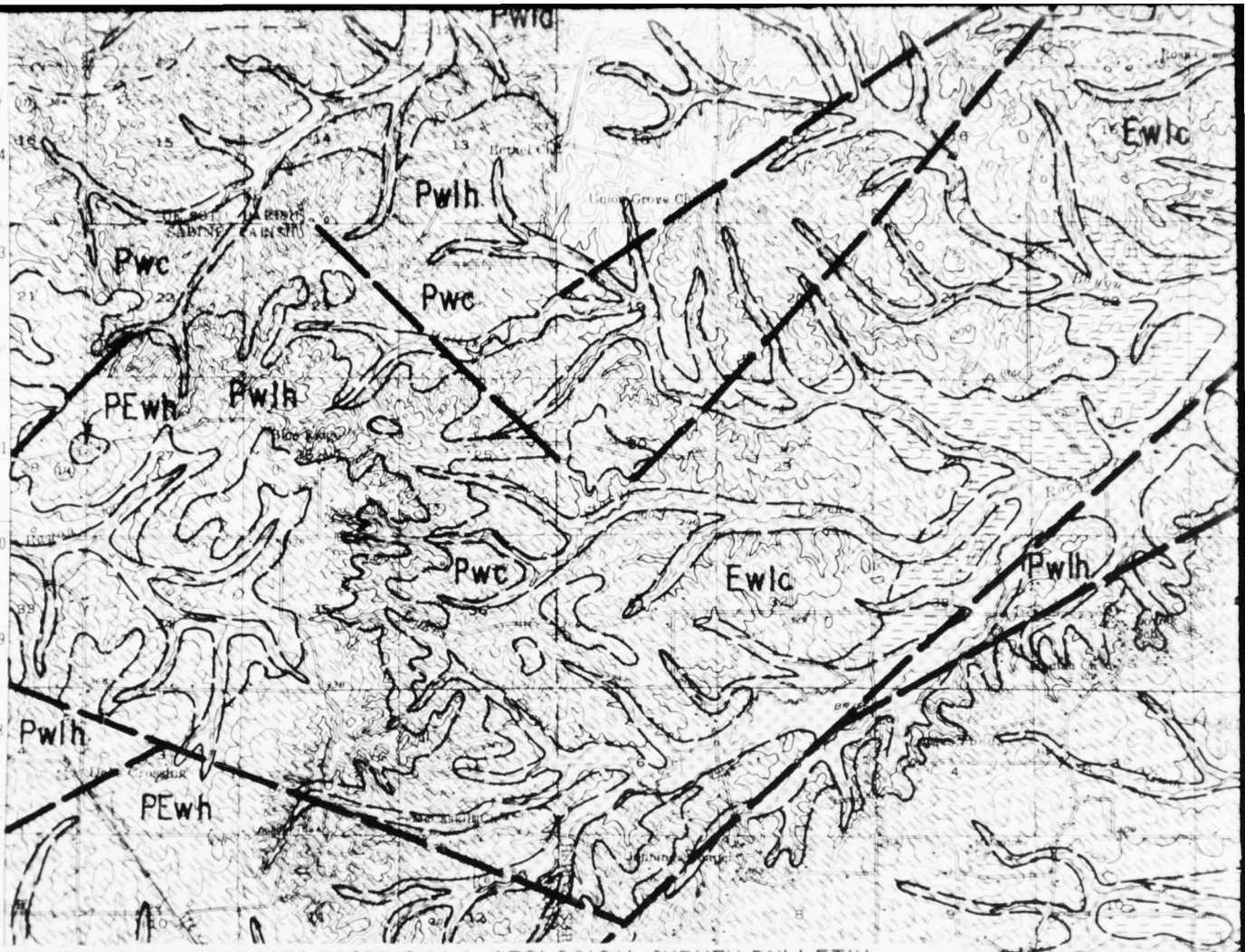
GREENWOOD, LA.

4



DS-318
P-11
P-1
P-2
RR-197
RR-209
Pwn
Pwn
Pwn
Qtp1
Qtp1
Qtp1
Pwld
Pwld
Pwld
Pwlh
Pwc
Pwc
Ewlc
B
R
A
AREA NOT MAPPED
Evelyn
Red Bayou Ch
St Lukes Ch
Long Lake
Stumpy Lake
Little Grassy Lake
St James Ch
Watermelon Lake
Oil Well
Jims
Union Grove Ch
RED RIVER PARISH
DE SOTO PARISH

COUSHATTA
Qtp
Qtm
RR-209
RR-102
W-1
R
A'
RR-213
RR-205
RR-145
LEA-B36
RR-147
RR-A9
RR-202
LEA-B82
B'
Qtp
R
Ewlc
Jims
Island



NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 25, "GEOLOGY OF DE SOTO AND RED RIVER PARISHES," BY GROVER E. MURRAY, 1948, LA. GEOLOGICAL SURVEY BULLETIN NO. 34, "GEOLOGY OF SABINE PARISH," BY H. V. ANDERSEN, 1960, LA. GEOLOGICAL SURVEY WATER RESOURCES BULLETIN NO. 4, "WATER RESOURCES OF NATCHITOCHES PARISH, LA.," BY R. NEWCOME AND OTHERS, 1963, AND UNPUBLISHED MAP OF NATCHITOCHES PARISH BY H. V. ANDERSEN OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.

LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp — PRAIRIE TERRACE-UPPER SURFACE
- Qtm — MONTGOMERY TERRACE

TERTIARY

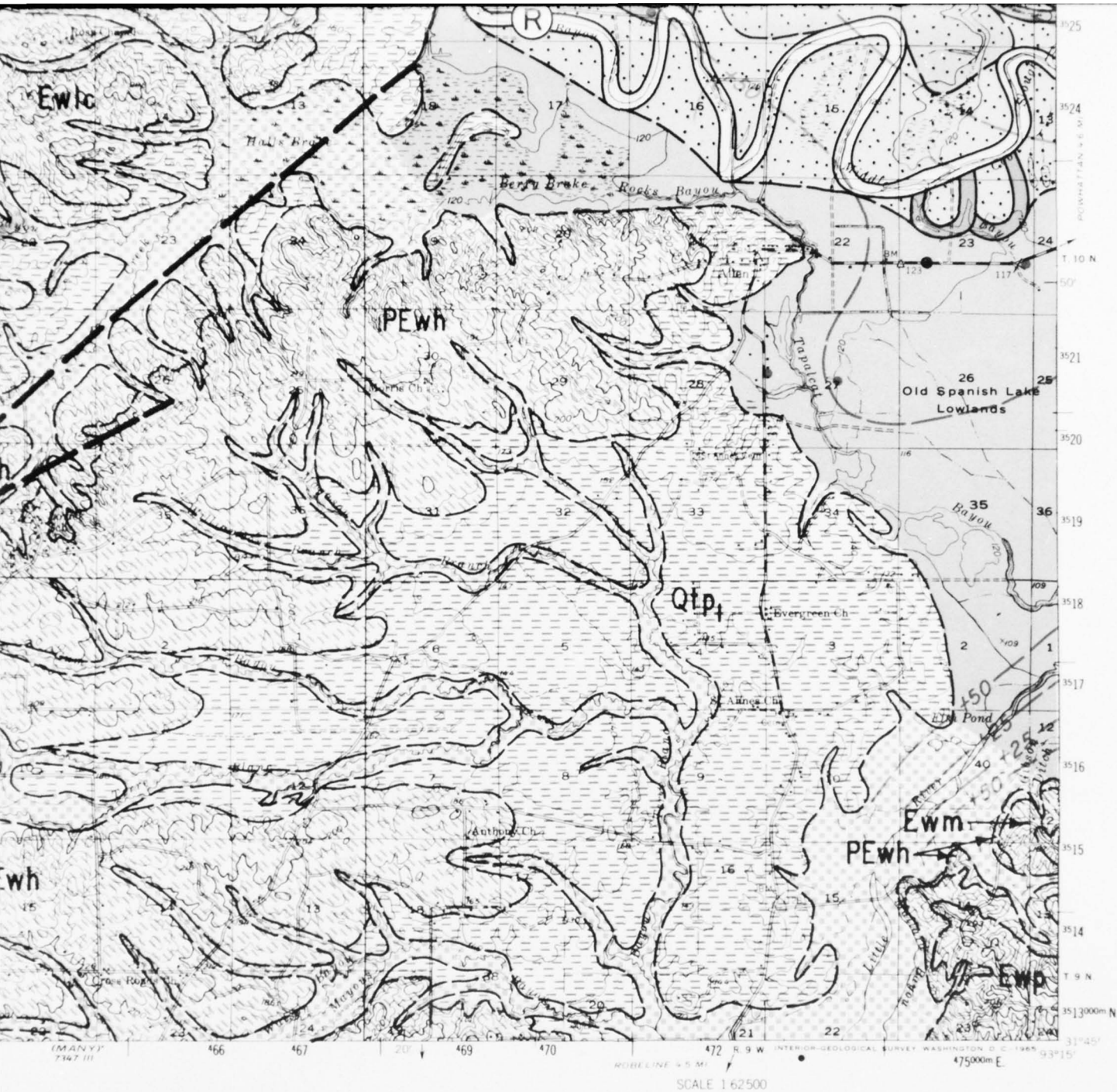
EOCENE-PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED
- Ewp — PENDLETON FORMATION
- Ewm — MARTHAVILLE FORMATION
- Ewlc — CONVERSE FORMATION (AFTER ANDERSEN IN NATCHITOCHES PARISH)
- PEwh — HALL SUMMIT FORMATION
- Pwlh — LIME HILL FORMATION (CONSIDERED AS A MEMBER OF LOGANSPORT FM BY MURRAY IN DESOTO PARISH)
- Pwc — CONVERSE FORMATION
- Pwld — LOGANSPORT FORMATION (AFTER MURRAY-INCLUDES COW BAYOU AND DOLET HILLS MEMBERS IN DESOTO PARISH)
- Pwd — NABORTON FORMATION

- (R) — RED RIVER
- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS S… USED TO CONTOUR BURIED TERTIAR…
- CLASS I BORING (LOGGED BY SOILS S… NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY S… USED TO CONTOUR BURIED TERTIAR…
- CLASS II BORING (NOT LOGGED BY S… NOT REACHING TERTIARY

3

HANNA (a)



ACT

OP OF TERTIARY
T-MSL

LOGGED BY SOILS SCIENTIST)
R BURIED TERTIARY SURFACE

LOGGED BY SOILS SCIENTIST)
ERTIARY

NOT LOGGED BY SOILS SCIENTIST)
R BURIED TERTIARY SURFACE

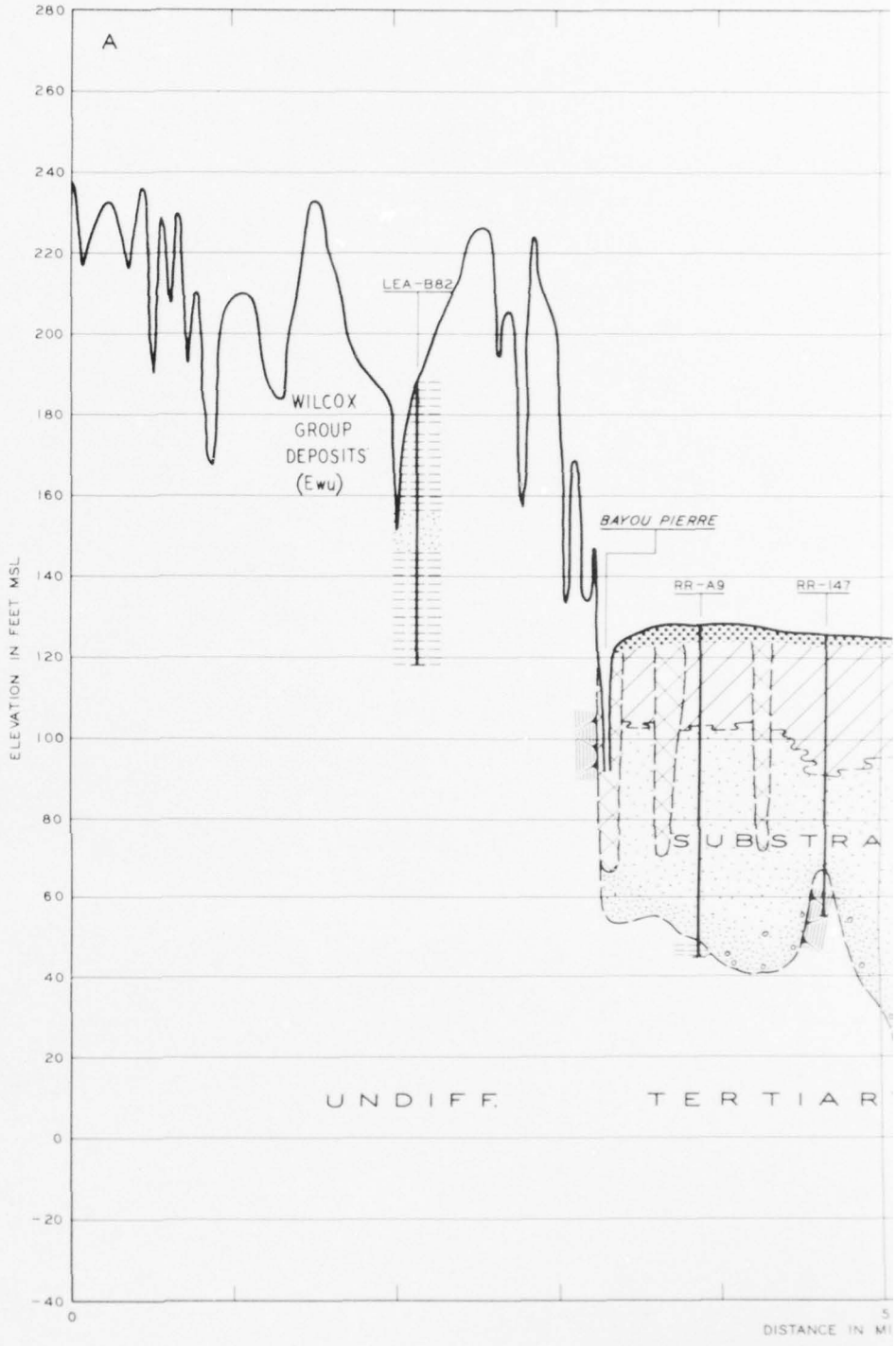
NOT LOGGED BY SOILS SCIENTIST)
ERTIARY

GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

DISTRIBUTION OF ALLUVIAL DEPOSITS

HANNA, LA.

4


A
280
260
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200
180
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140
120
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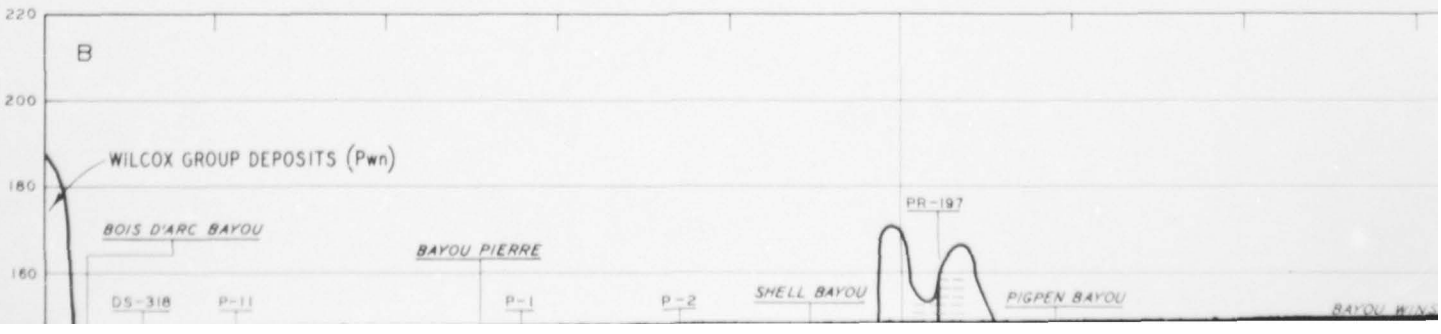
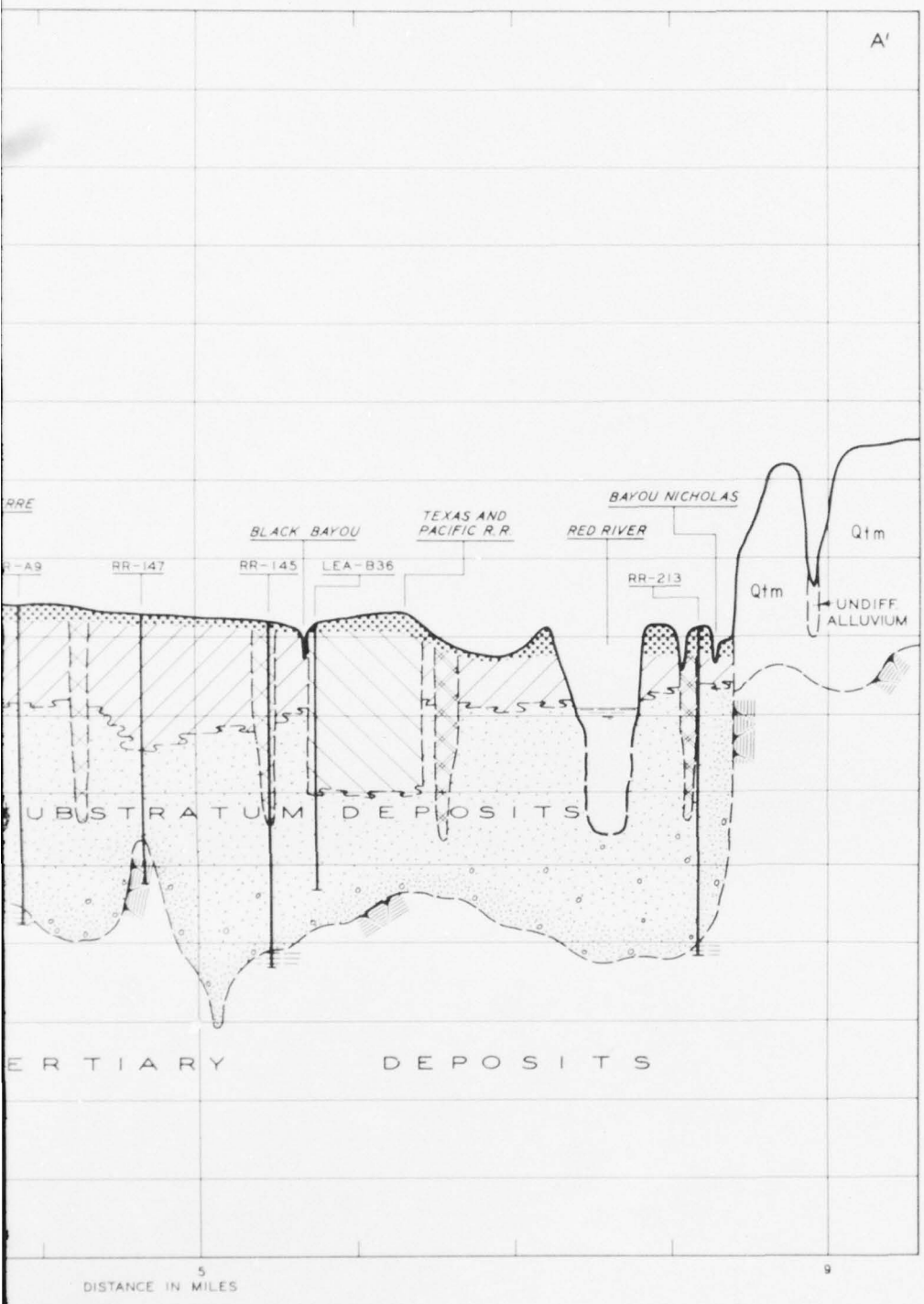
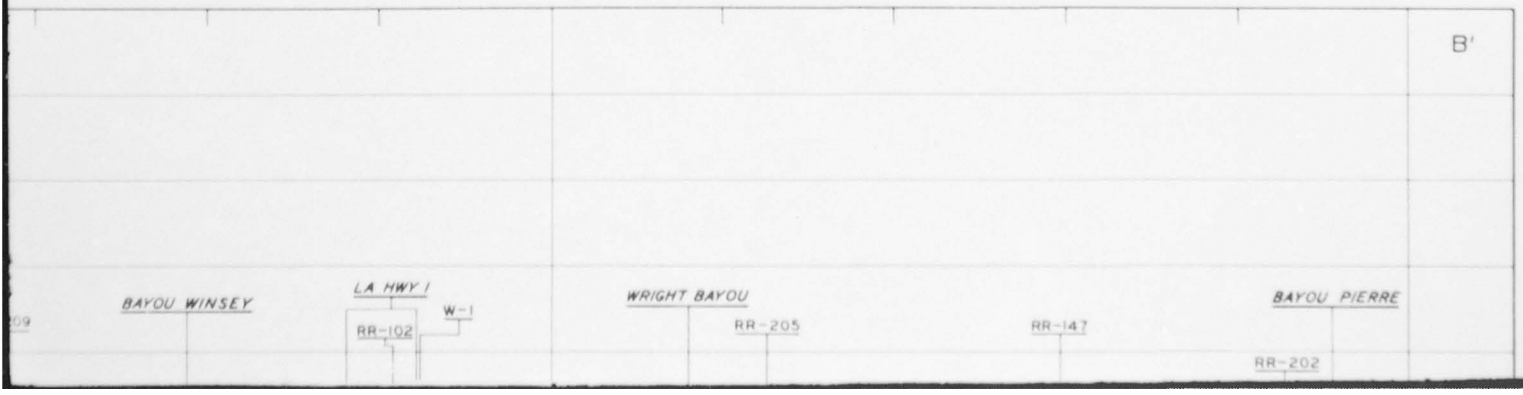
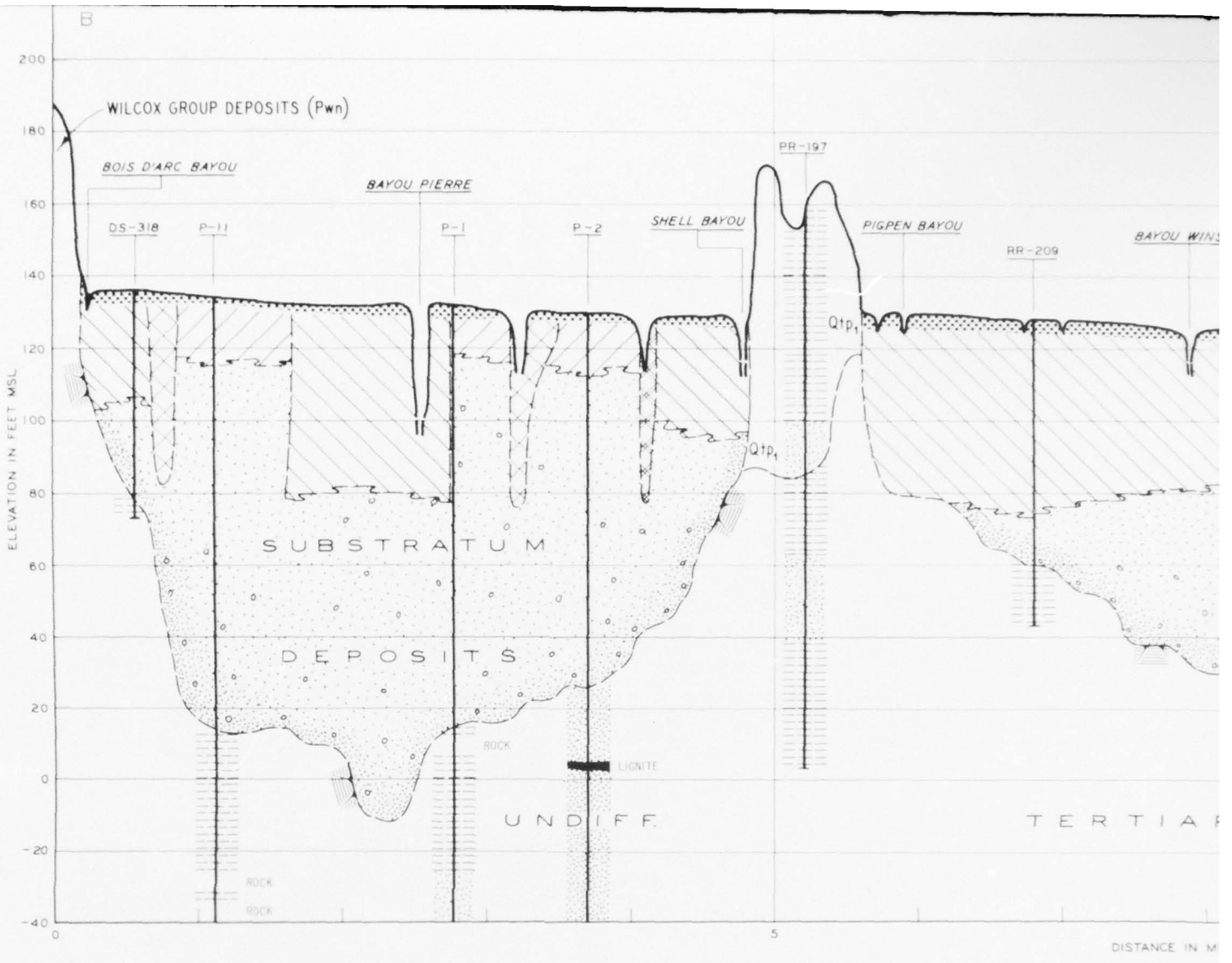
20
0
-20
-40
ELEVATION IN FEET MSL
LEA-B82
WILCOX
GROUP
DEPOSITS
(Ewu)
BAYOU PIERRE
RR-A9
RR-147
SUBSTRA
UNDIFF.
TERTIAR
0
DISTANCE IN MI


220
200
180
160
B
WILCOX GROUP DEPOSITS (Pwn)
BOIS D'ARC BAYOU
BAYOU PIERRE
DS-318
P-11
P-1
P-2
SHELL BAYOU
PR-197
PIGPEN BAYOU


A'
BAYOU NICHOLAS
BLACK BAYOU
TEXAS AND PACIFIC R.R.
RED RIVER
Qtm
RR-A9
RR-147
RR-145
LEA-B36
RR-213
Qtm
UNDIFF. ALLUVIUM
UBSTRATUM DEPOSITS
ERTIARY DEPOSITS
5
9
DISTANCE IN MILES


B'
BAYOU WINSEY
LA. HWY. I
W-1
RR-102
WRIGHT BAYOU
RR-205
RR-147
BAYOU PIERRE
RR-202



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

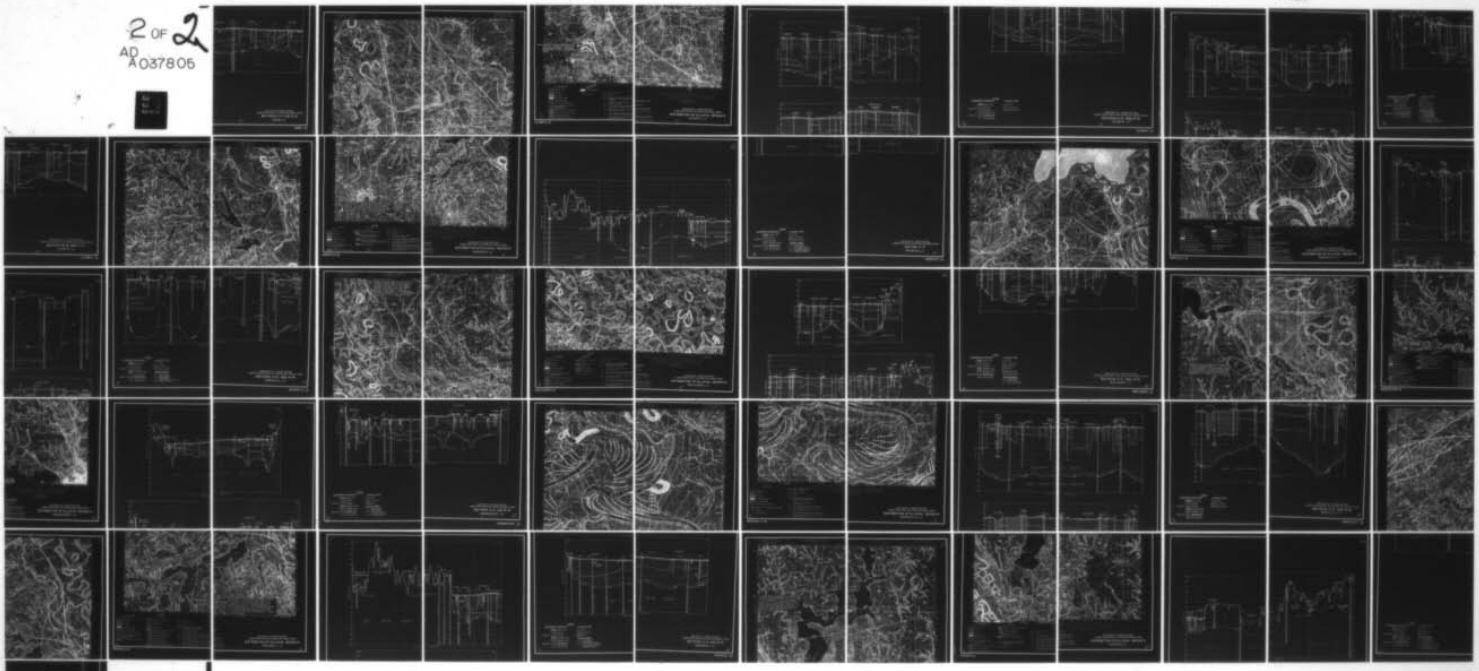
- Qtm — MONTGOMERY TERRACE
- Ewc — UNDIFFERENTIATED WILCOX GROUP DEPOSITS
- Pwn' — WILCOX GROUP DEPOSITS (NABORTON FORMATION)

3

AD-A037 805 ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MISS F/G 8/7
GEOLOGICAL INVESTIGATION OF THE LOWER RED RIVER-ATCHAFALAYA BAS--ETC(U)
JUL 74 F L SMITH, D P RUSS

UNCLASSIFIED WES-TR-S-74-5 NL

2 OF 2
AD A037805



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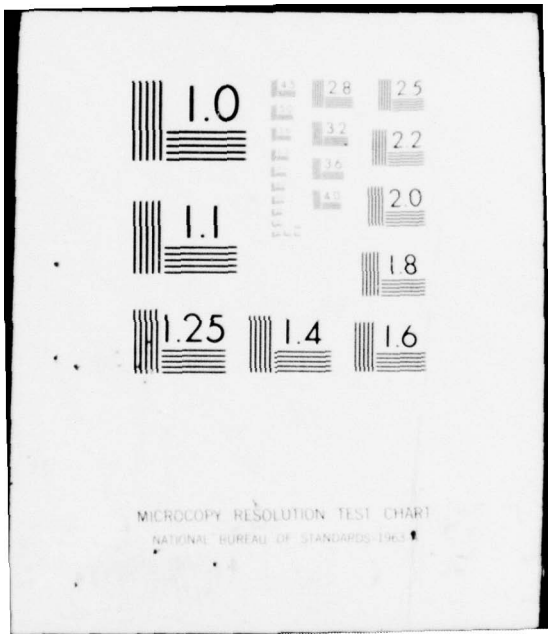
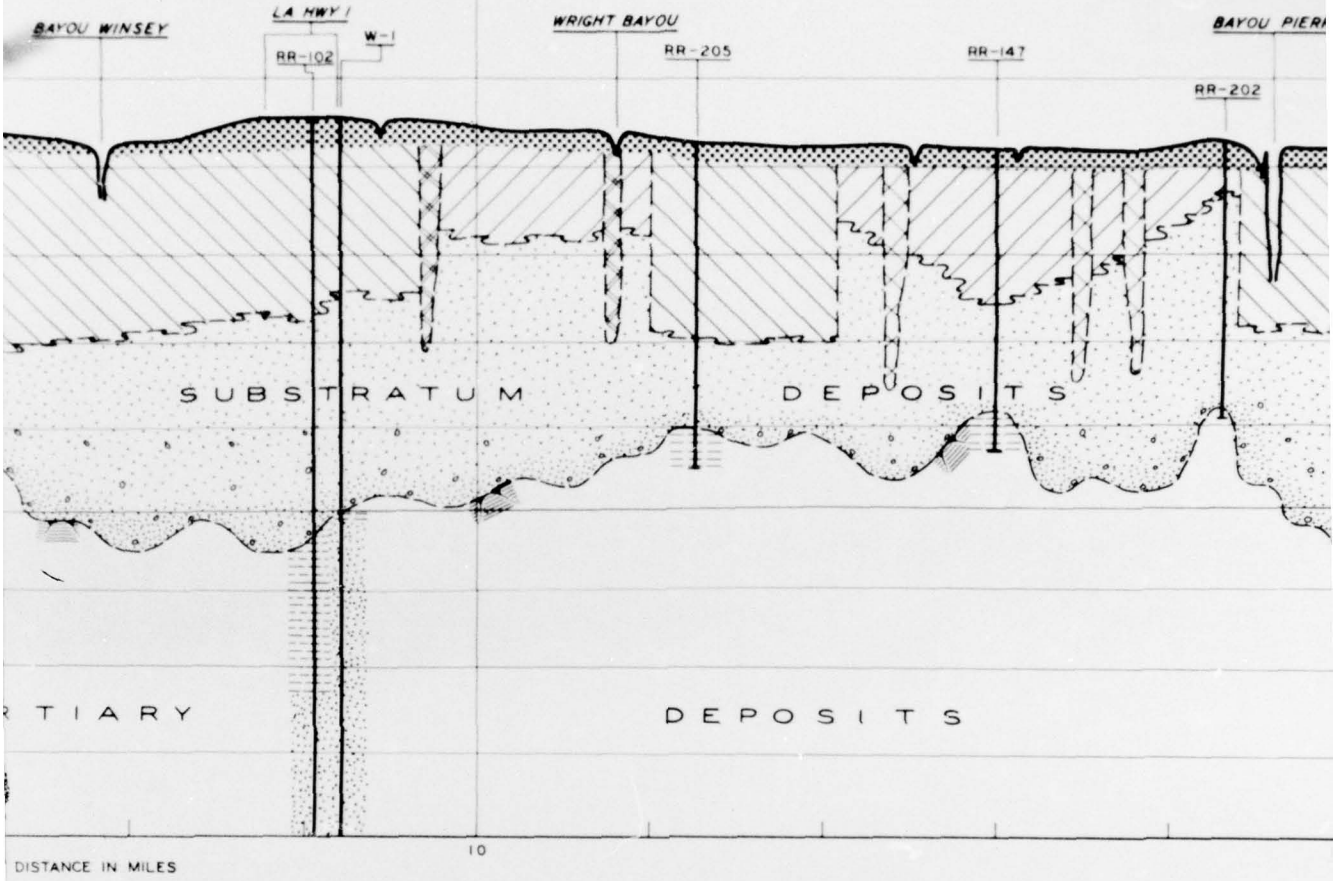
DATE FILMED
4-77


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BAS

SECTIONS A-A' AND B-

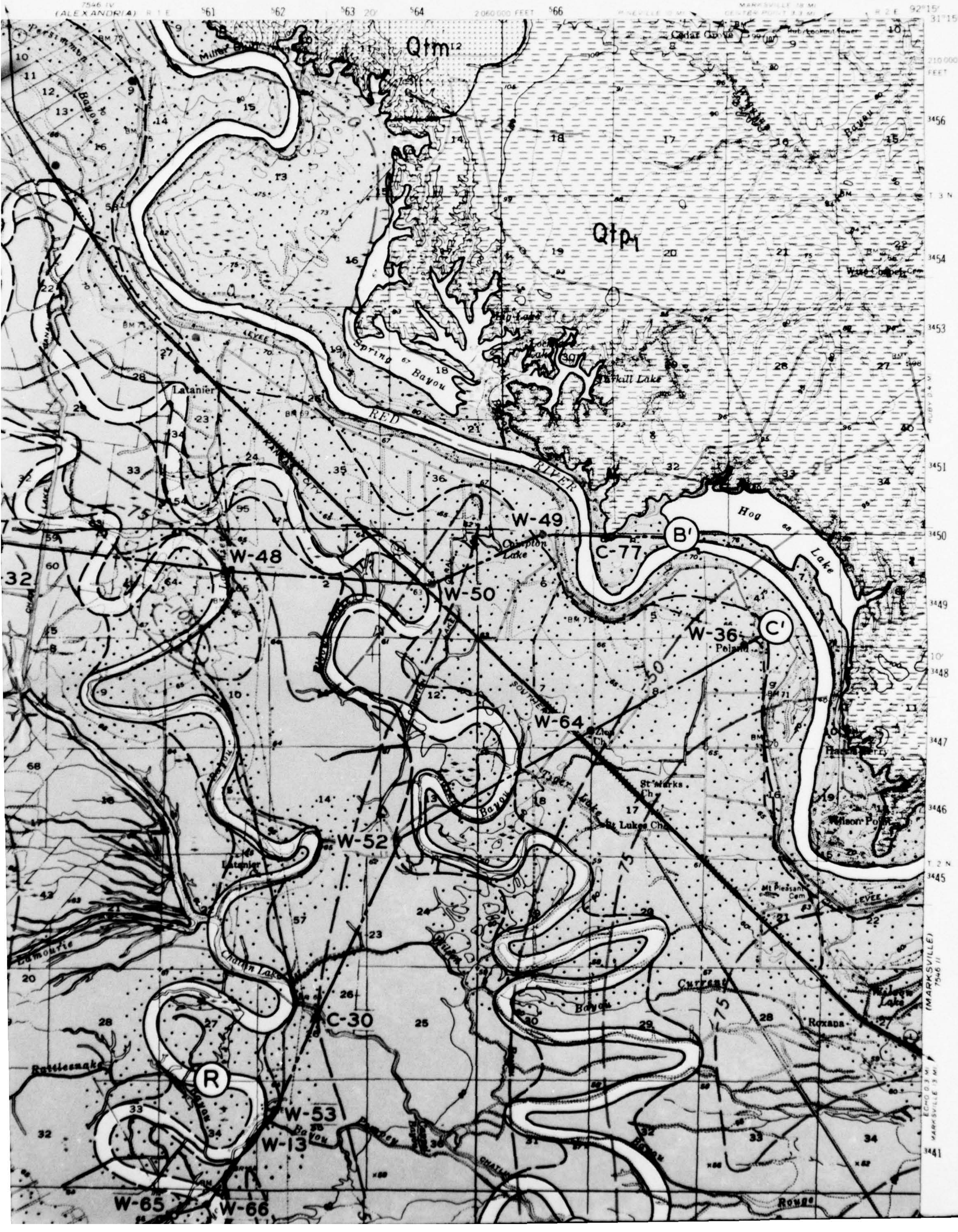
HANNA, LA.

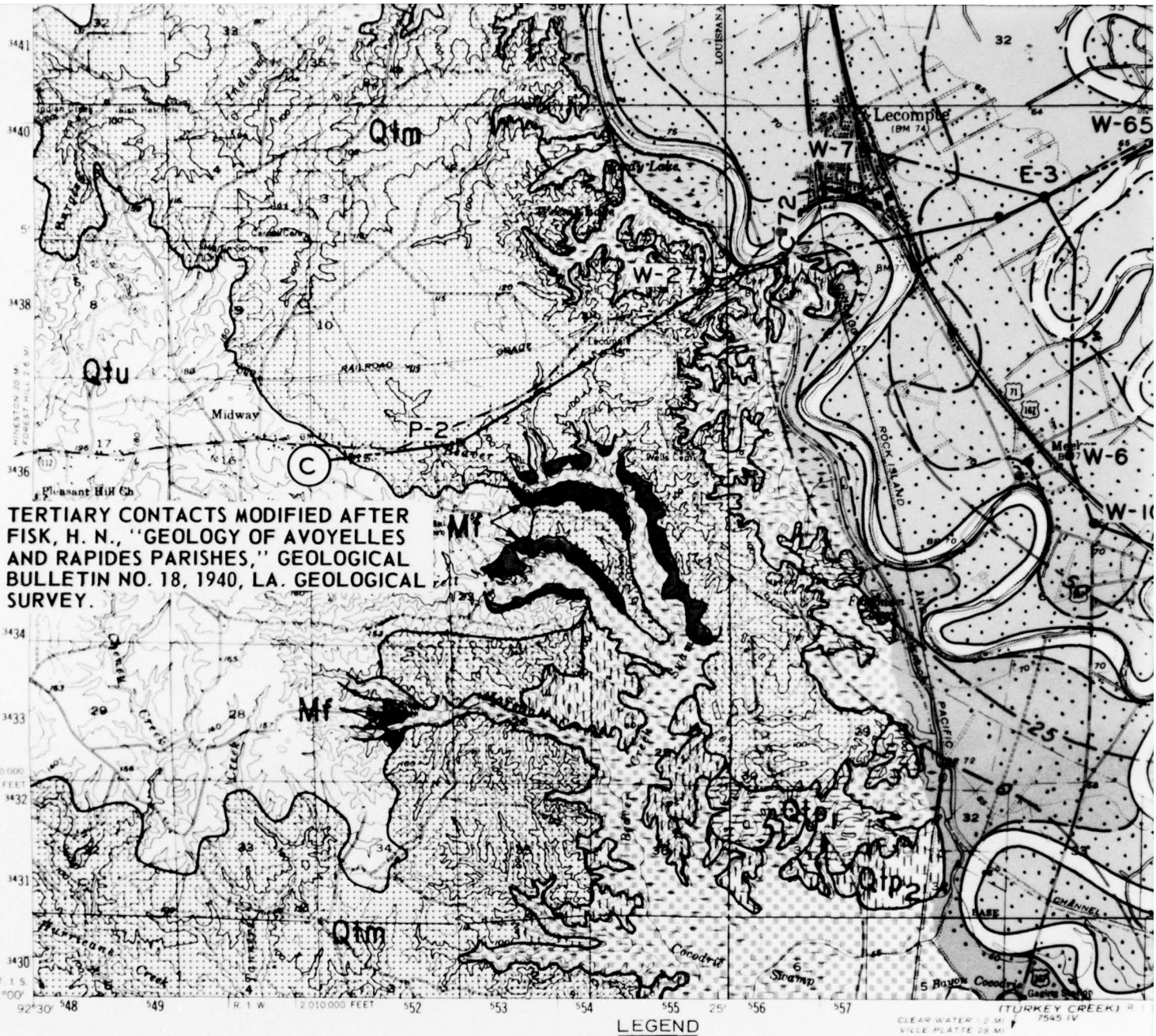
4

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LECOMPTE QUADRANGLE
LOUISIANA—RAPIDES PARISH
15 MINUTE SERIES (TOPOGRAPHIC)

2





NOTE: TERTIARY CONTACTS MODIFIED AFTER FISK, H. N., "GEOLOGY OF AVOYELLES AND RAPIDES PARISHES," GEOLOGICAL BULLETIN NO. 18, 1940, LA. GEOLOGICAL SURVEY.

LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- MAJOR CREVASSE CHANNELS
- UNDIFFERENTIATED ALLUVIUM OF SMALL CREEKS

PLEISTOCENE

- Qtp1 PRAIRIE TERRACE-UPPER SURFACE
- Qtp2 PRAIRIE TERRACE-LOWER SURFACE
- Qtm MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE

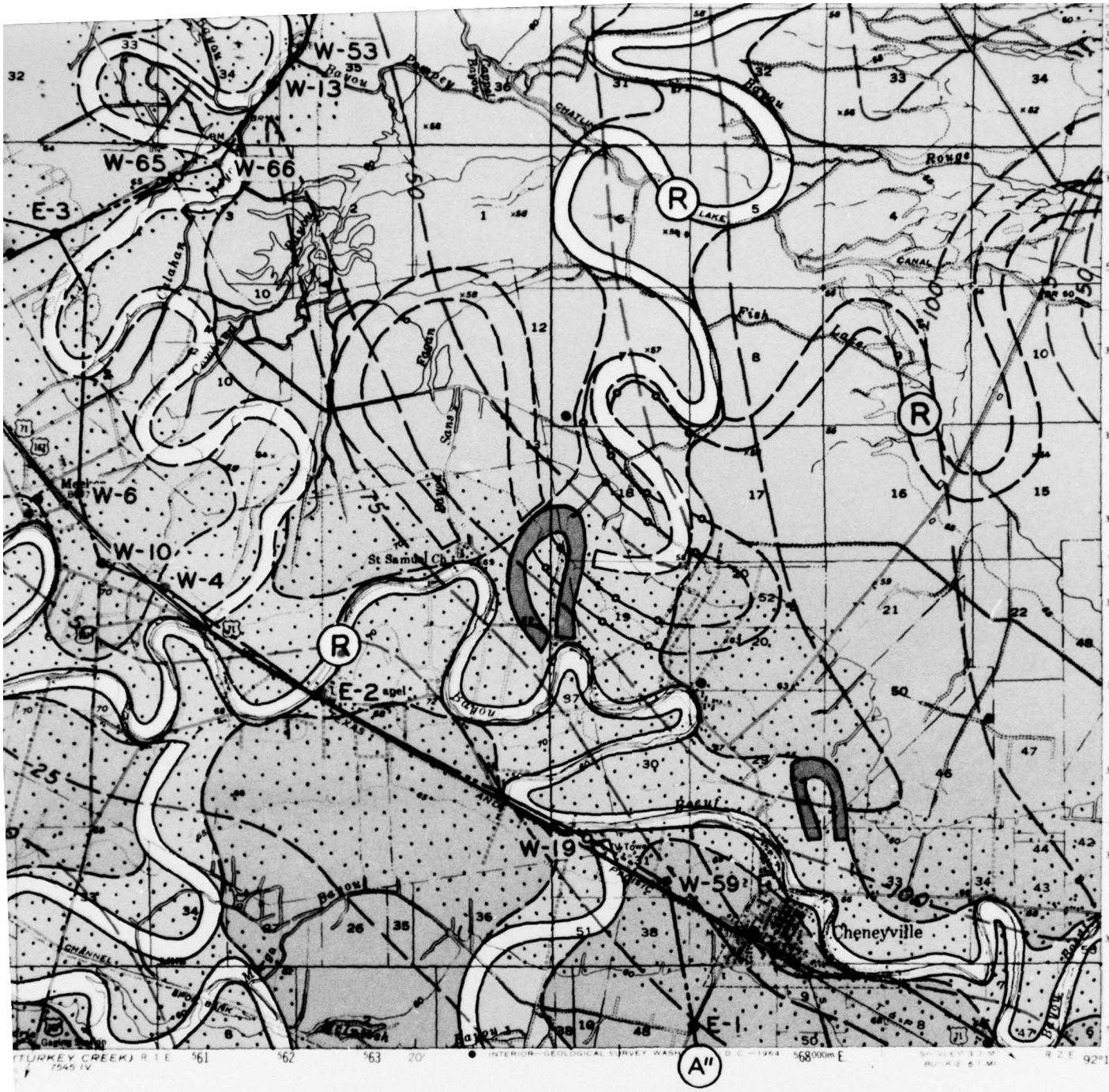
TERTIARY

MIOCENE

- FLEMING FORMATION
- (R) RED RIVER

- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED CO REWORKED BY SUBSEQUENT MEANDERIN A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIEN USED TO CONTOUR BURIED TERTIARY SU
- CLASS I BORING (LOGGED BY SOILS SCIEN NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS USED TO CONTOUR BURIED TERTIARY SU
- CLASS II BORING (NOT LOGGED BY SOILS NOT REACHING TERTIARY

3



OF ABANDONED COURSE
QUENT MEANDERING OF

F TERTIARY

ED BY SOILS SCIENTIST)
RIED TERTIARY SURFACE

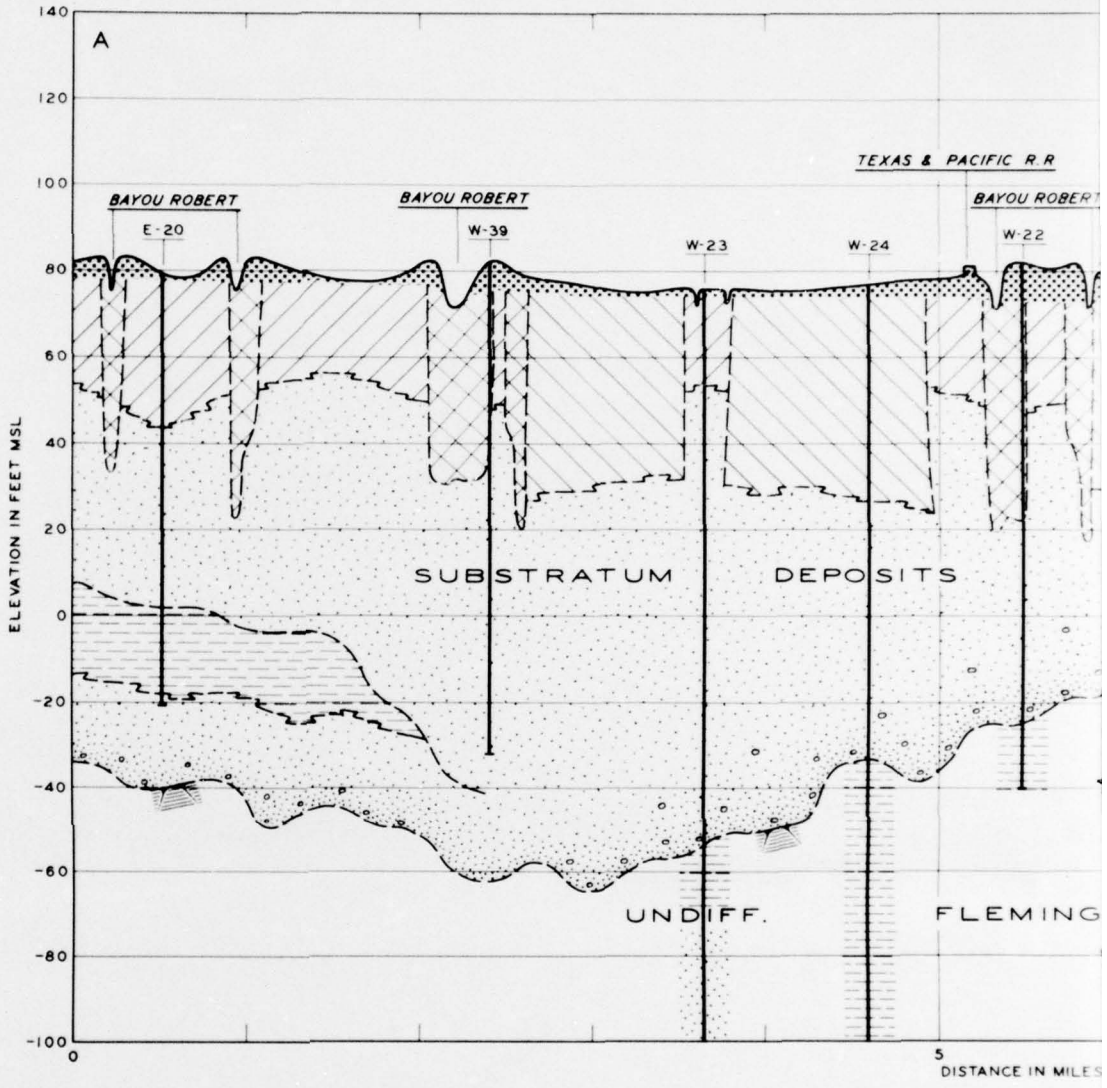
ED BY SOILS SCIENTIST)
ARY

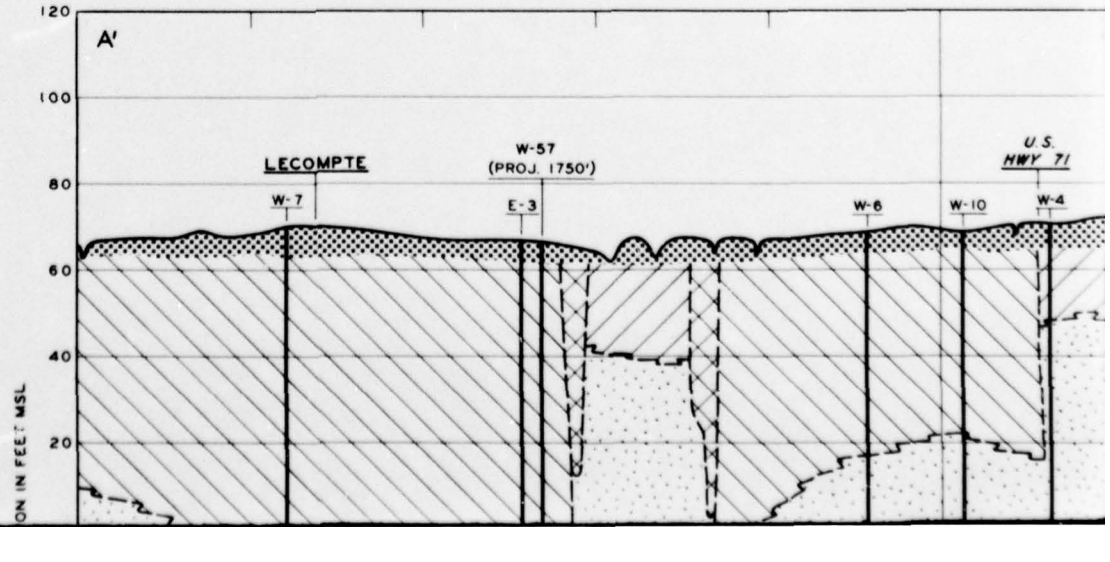
LOGGED BY SOILS SCIENTIST)
RIED TERTIARY SURFACE

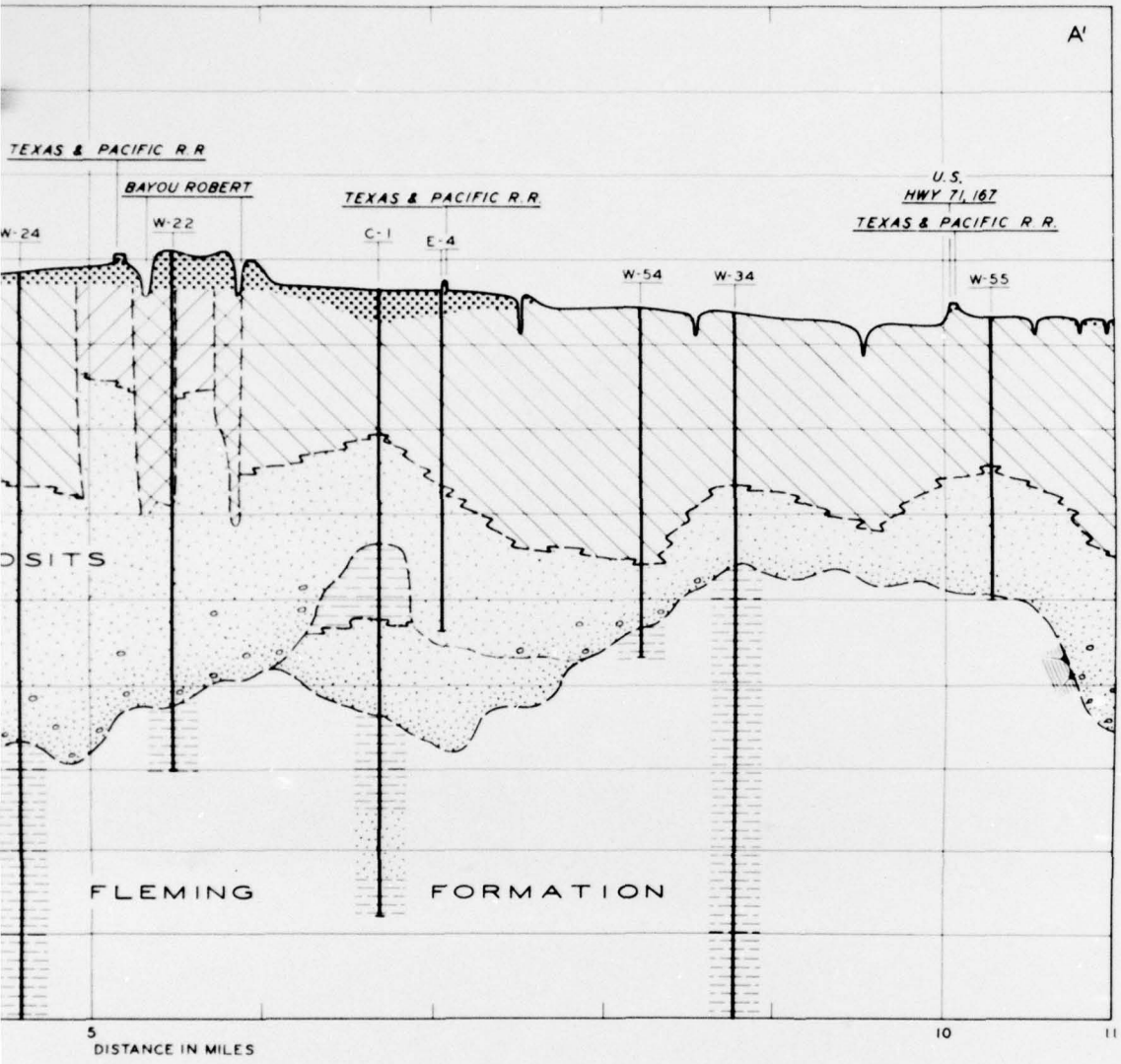
LOGGED BY SOILS SCIENTIST)
IRY

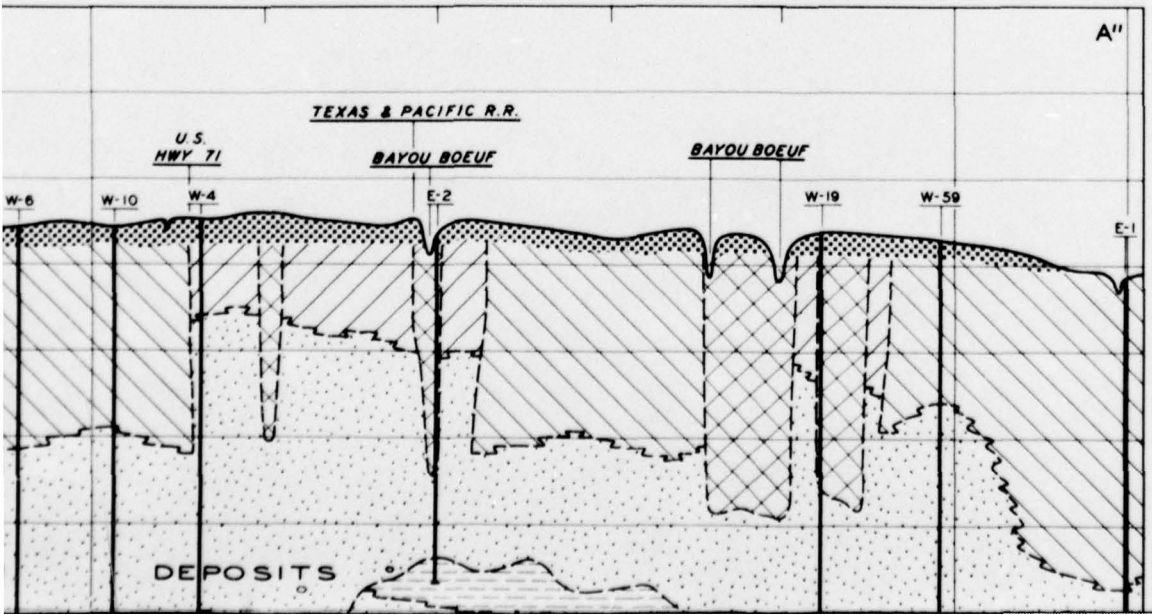
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
LECOMPTE, LA.

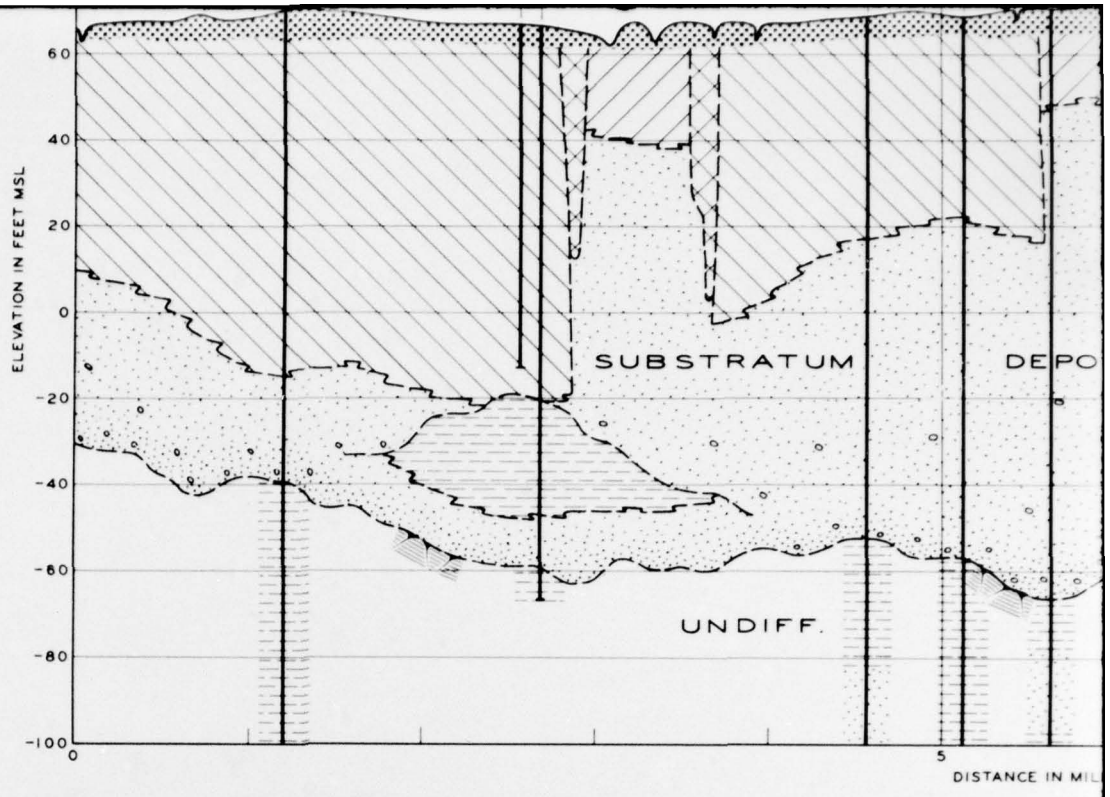
4


A
140
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
ELEVATION IN FEET MSL
BAYOU ROBERT
E-20
BAYOU ROBERT
W-39
TEXAS & PACIFIC R.R
BAYOU ROBERT
W-23
W-24
W-22
SUBSTRATUM DEPOSITS
UNDIFF.
FLEMING
0
5
DISTANCE IN MILES


A'
120
100
80
60
40
20
LECOMPTE
W-7
W-57
(PROJ. 1750')
E-3
U.S.
HWY 71
W-6
W-10
W-4


A'
TEXAS & PACIFIC R.R
BAYOU ROBERT
TEXAS & PACIFIC R.R.
U.S.
HWY 71, 167
TEXAS & PACIFIC R.R.
W-24
W-22
C-1
E-4
W-54
W-34
W-55
DSITS
FLEMING
FORMATION
5
10
11
DISTANCE IN MILES


A''
TEXAS & PACIFIC R.R.
U.S.
HWY 71
BAYOU BOEUF
BAYOU BOEUF
W-6
W-10
W-4
E-2
W-19
W-59
E-1
DEPOSITS



LEGEND

ENVIRONMENTS OF DEPOSITION

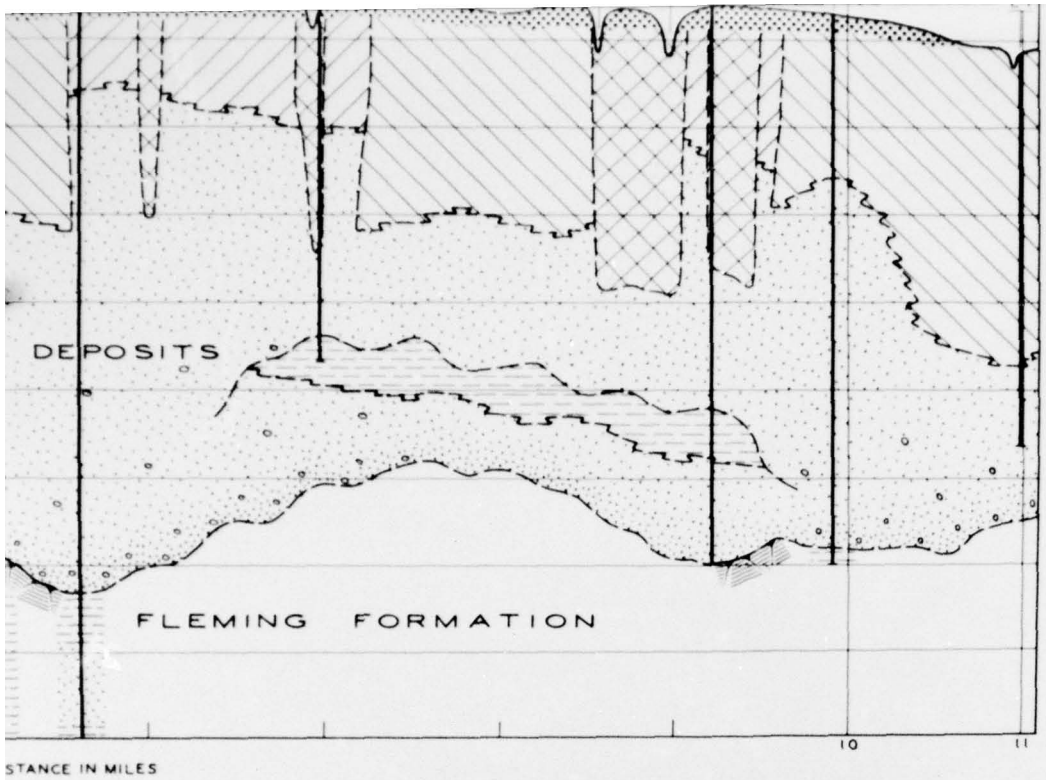
TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SAND AND GRAVEL

3

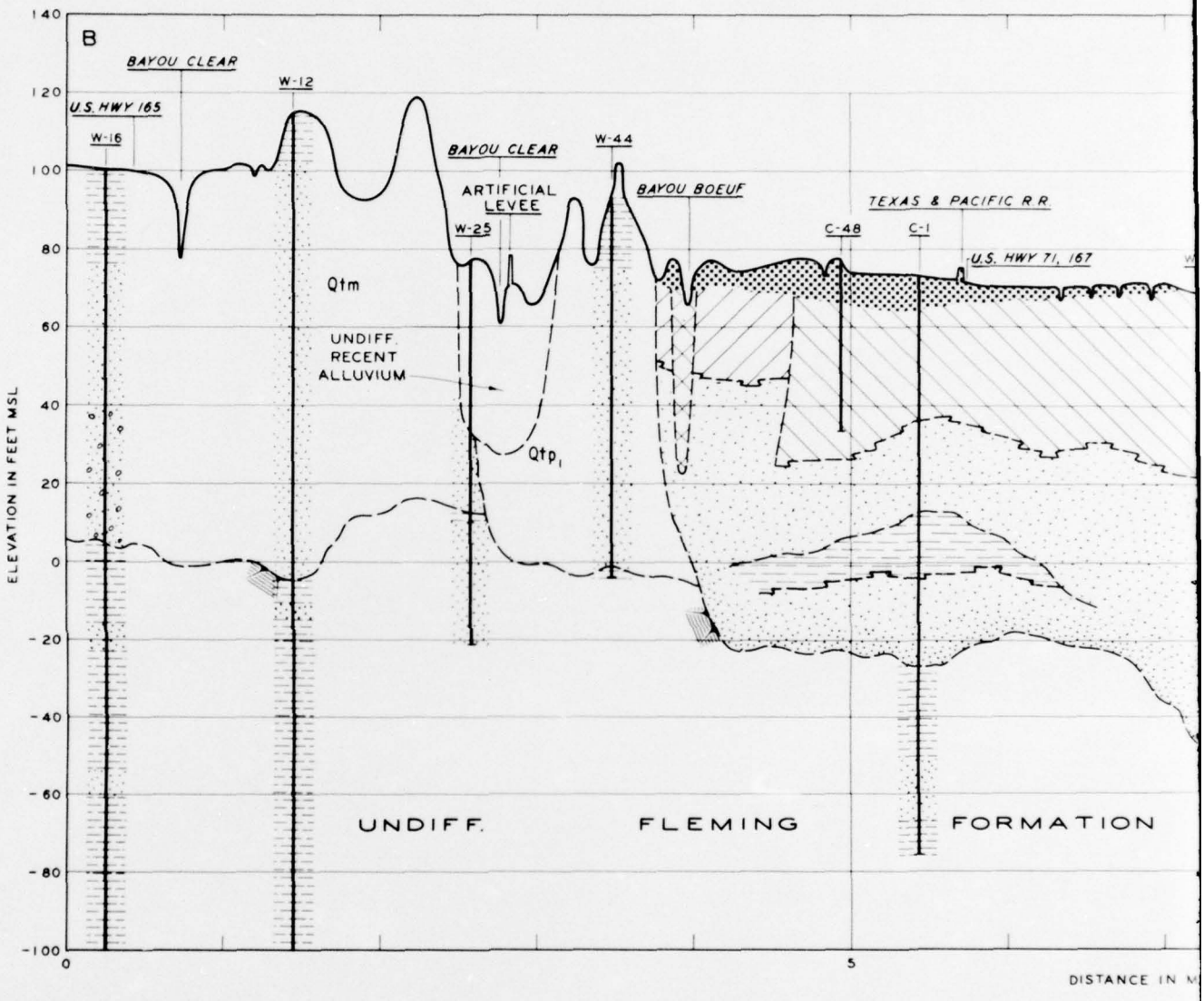


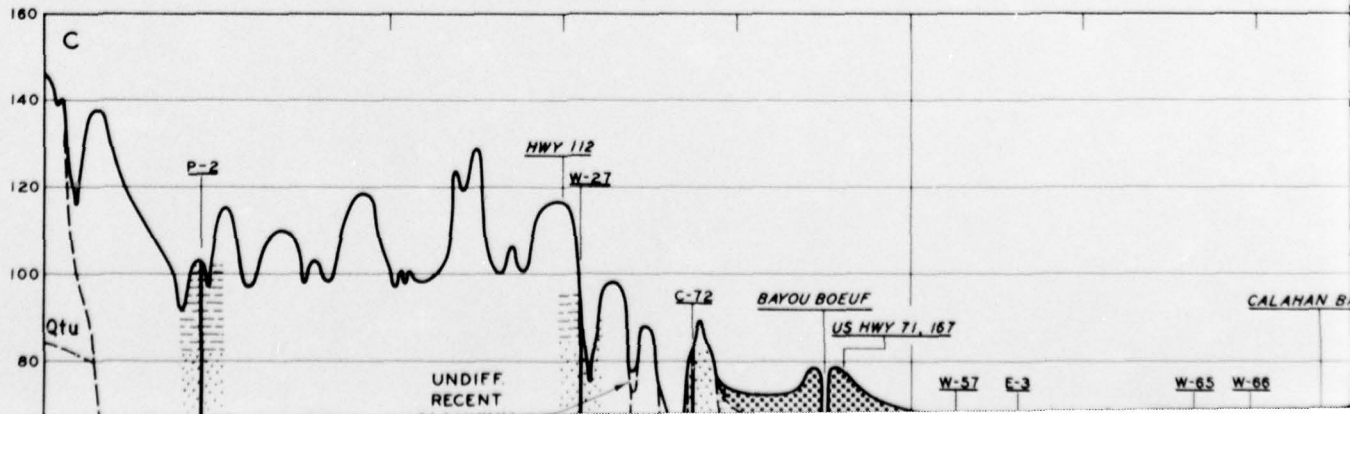
GEOLOGICAL INVESTIGATION
LOWER RED RIVER–ATCHAFALAYA BASIN AREA

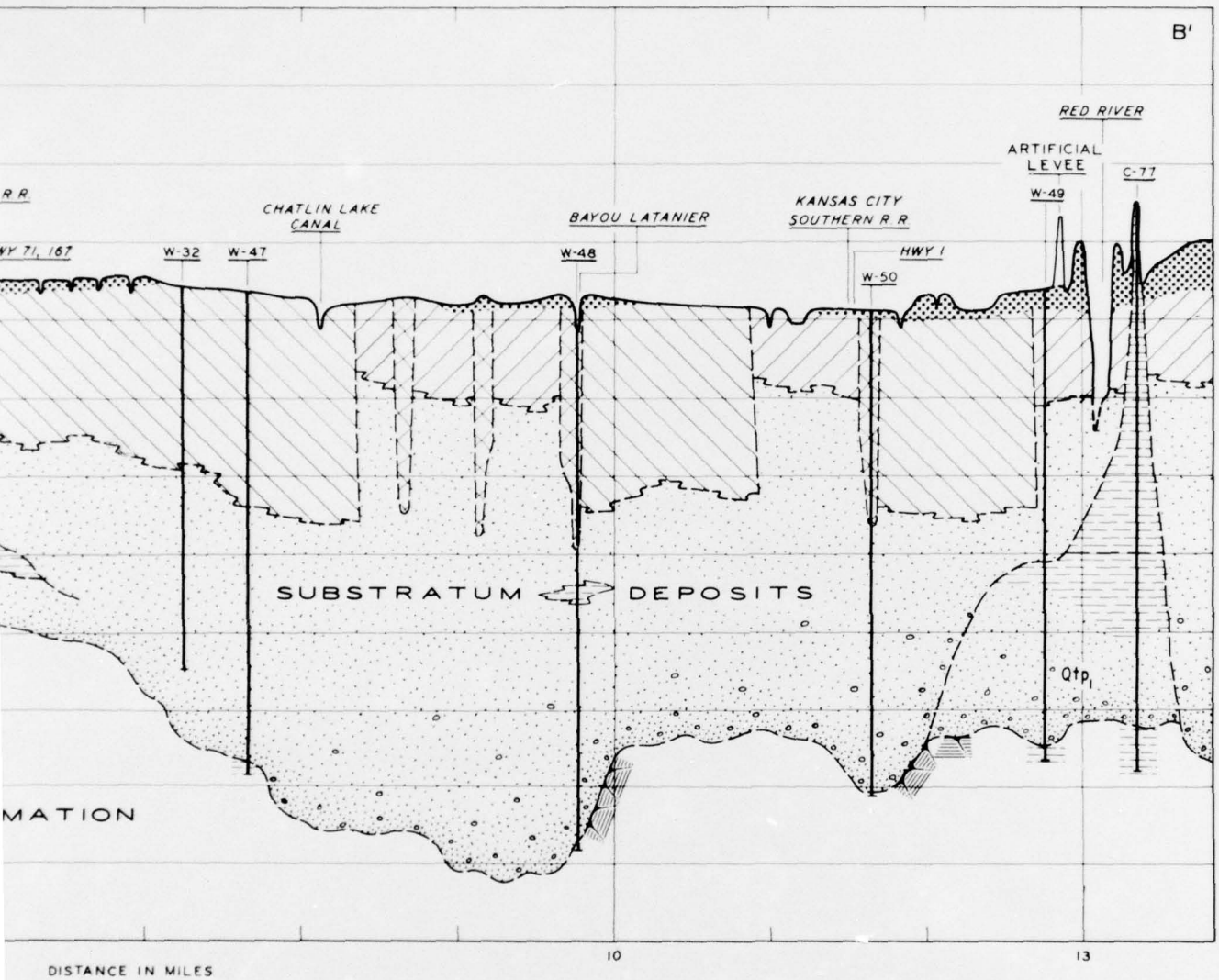
SECTIONS A–A′ AND A′–A″

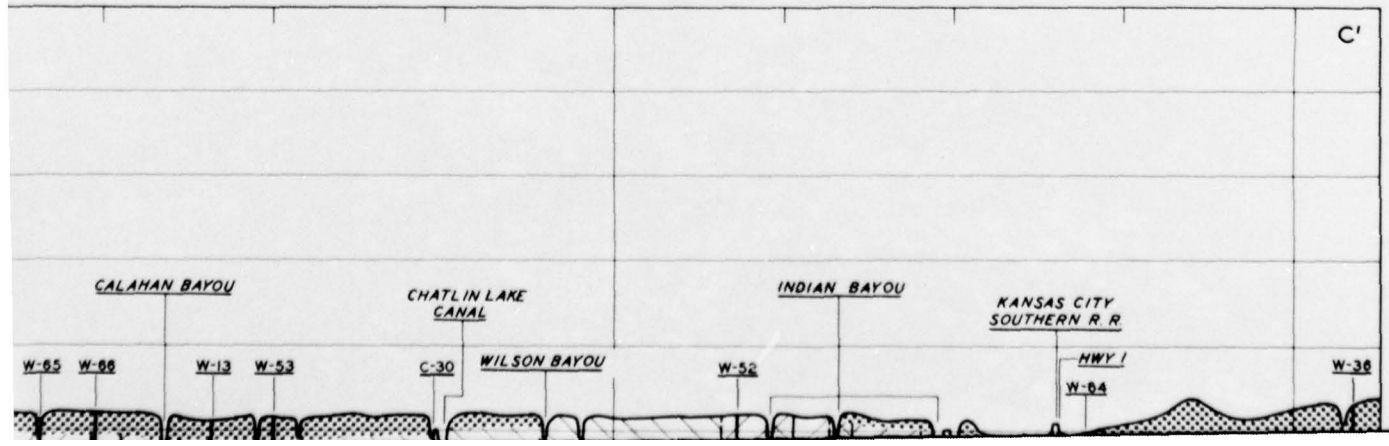
LECOMPTE, LA.

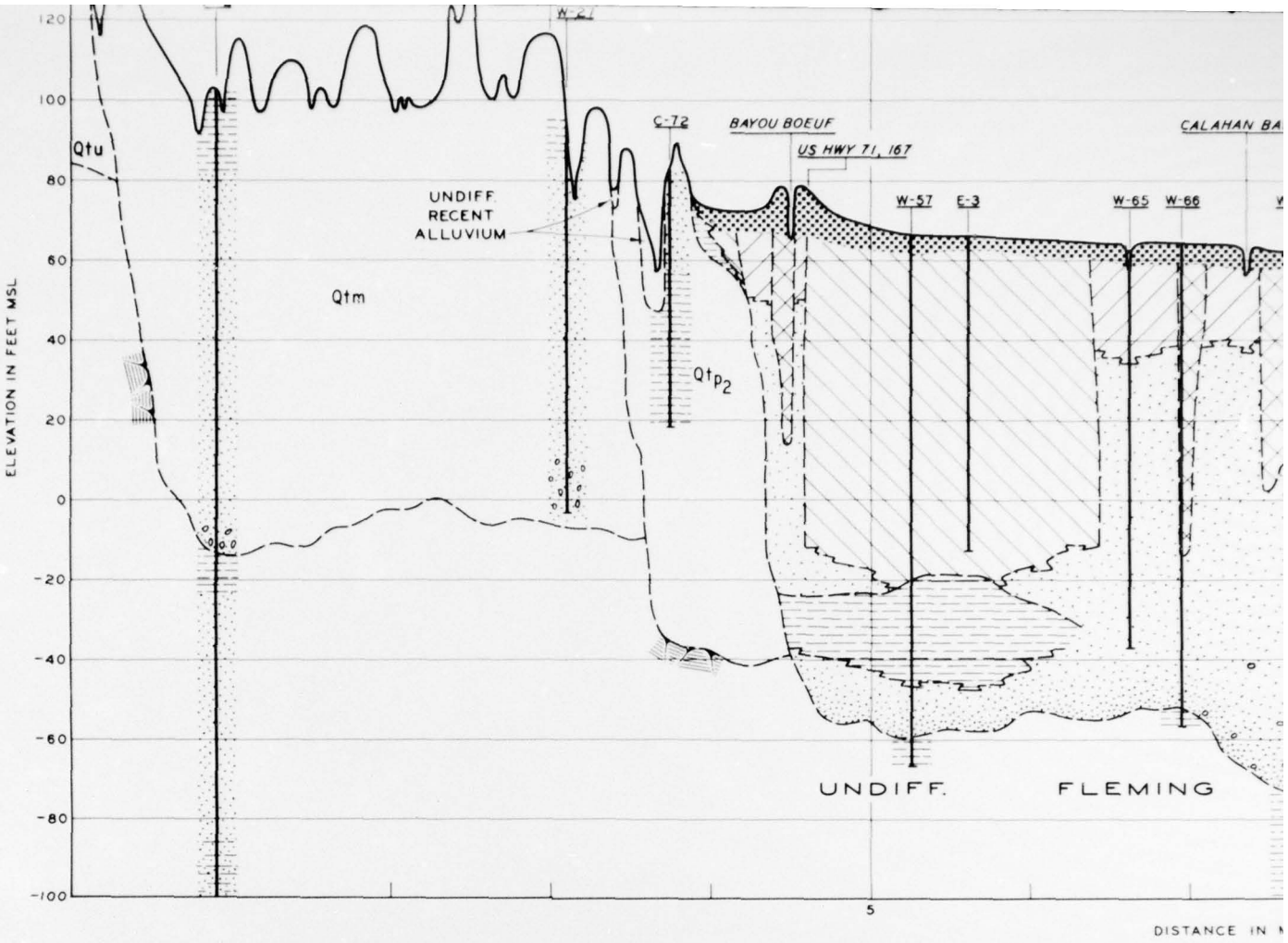
4


B
BAYOU CLEAR
W-12
U.S. HWY 165
W-16
BAYOU CLEAR
W-44
ARTIFICIAL LEVEE
W-25
BAYOU BOEUF
TEXAS & PACIFIC R.R.
C-48
C-1
U.S. HWY 71, 167
Qtm
UNDIFF. RECENT ALLUVIUM
Qtp1
ELEVATION IN FEET MSL
140
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
UNDIFF.
FLEMING
FORMATION
0
5
DISTANCE IN M


C
160
140
120
100
80
P-2
HWY 112
W-27
C-72
BAYOU BOEUF
US HWY 71, 167
CALAHAN B
Qtu
UNDIFF.
RECENT
W-57
E-3
W-65
W-66


B'
RED RIVER
ARTIFICIAL LEVEE
C-77
W-49
R R
CHATLIN LAKE CANAL
BAYOU LATANIER
KANSAS CITY SOUTHERN R R
HWY 71, 167
W-32
W-47
W-48
HWY 1
W-50
SUBSTRATUM DEPOSITS
Qtp1
MATION
10
13
DISTANCE IN MILES


C'
CALAHAN BAYOU
CHATLIN LAKE CANAL
INDIAN BAYOU
KANSAS CITY SOUTHERN R R
W-65
W-66
W-13
W-53
C-30
WILSON BAYOU
W-52
HWY 1
W-64
W-36



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED COURSE
- COLLUVIAL APRON

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

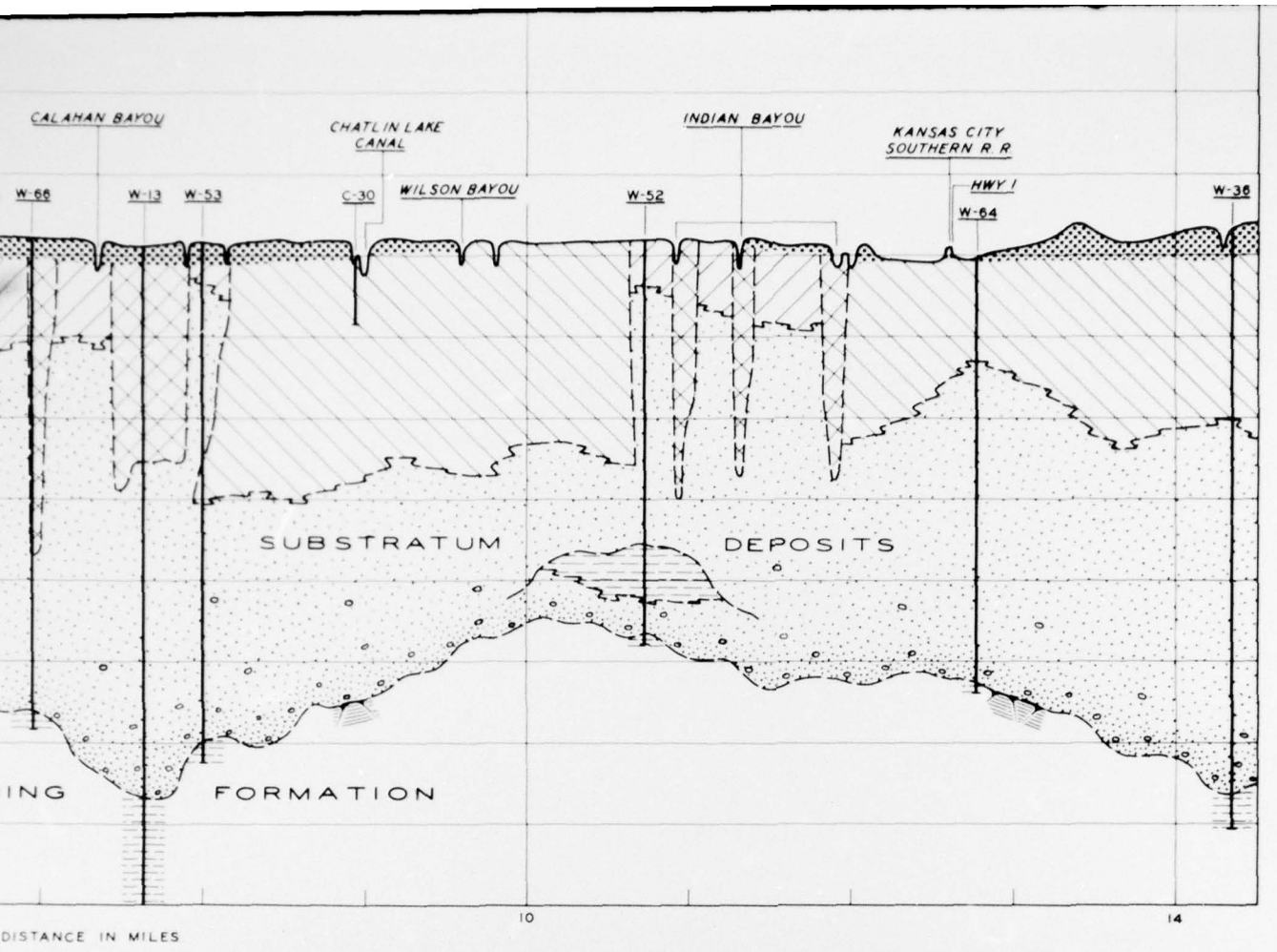
LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- CLAYEY SAND
- SAND AND GRAVEL

MAPPING SYMBOLS

- Qtp_1 PRAIRIE TERRACE- UPPER SURFACE
- Qtp_2 PRAIRIE TERRACE- LOWER SURFACE
- Qtm MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE

3



GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

SECTIONS B-B' AND C-C'

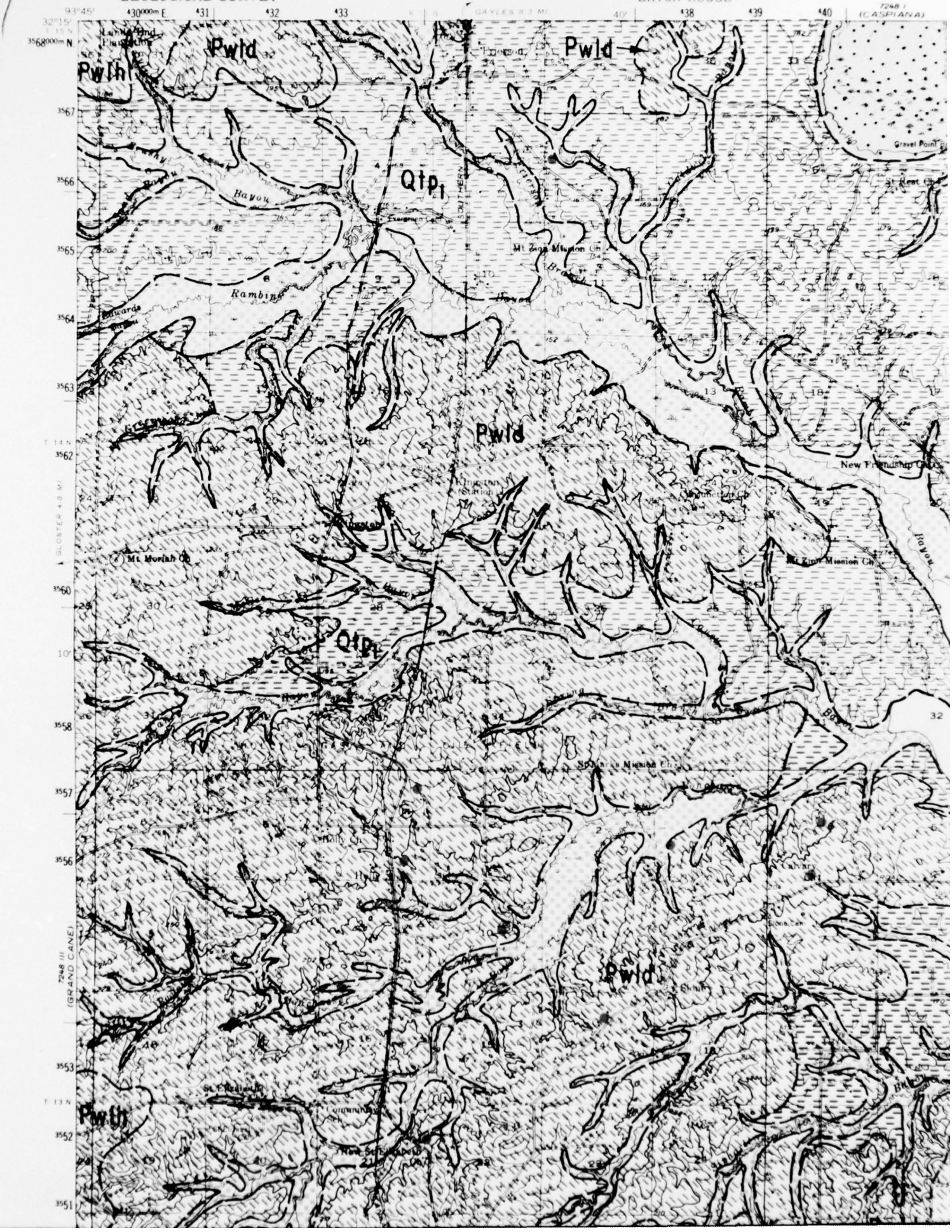
LECOMPTE, LA.

4

LECOMPTE (c)

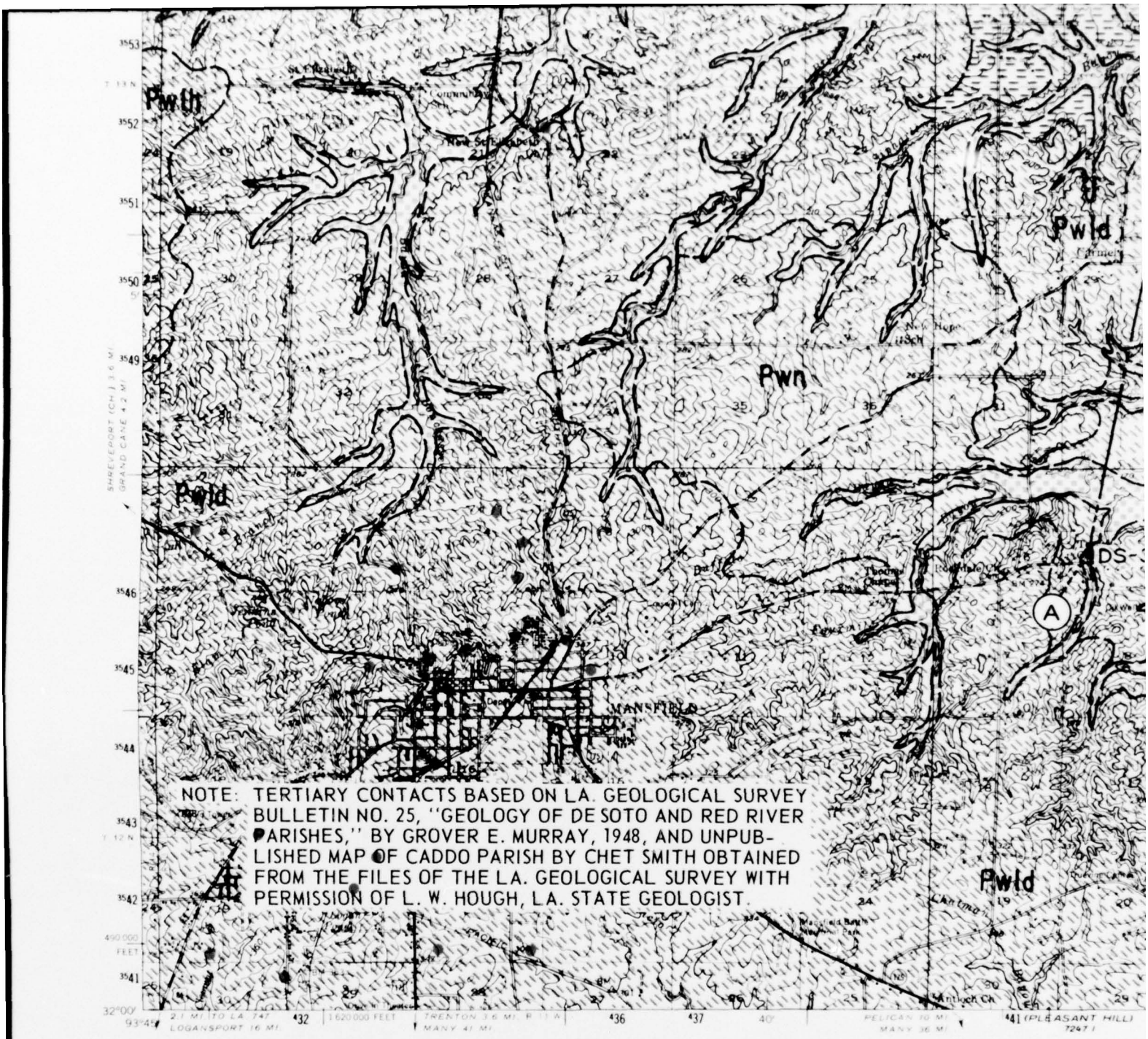
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE



UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

MANSFIELD QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp — PRAIRIE TERRACE-UPPER SURFACE

TERTIARY

EOCENE–PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED
- Pwth — LOGANSPORT FORMATION (AFTER MURRAY-INCLUDES LIME HILL MEMBER IN DESOTO PARISH)
- Pwld — LOGANSPORT FORMATION (AFTER MURRAY-INCLUDES COW BAYOU AND DOLET HILLS MEMBERS IN DESOTO PARISH)
- Pwn — NABORTON FORMATION

- (R) — RED RIVER
- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN NOT REACHING TERTIARY

SCALE 1:62500

4 MILES

21000 FEET

5 KILOMETERS

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

S SCIENTIST)
IARY SURFACE

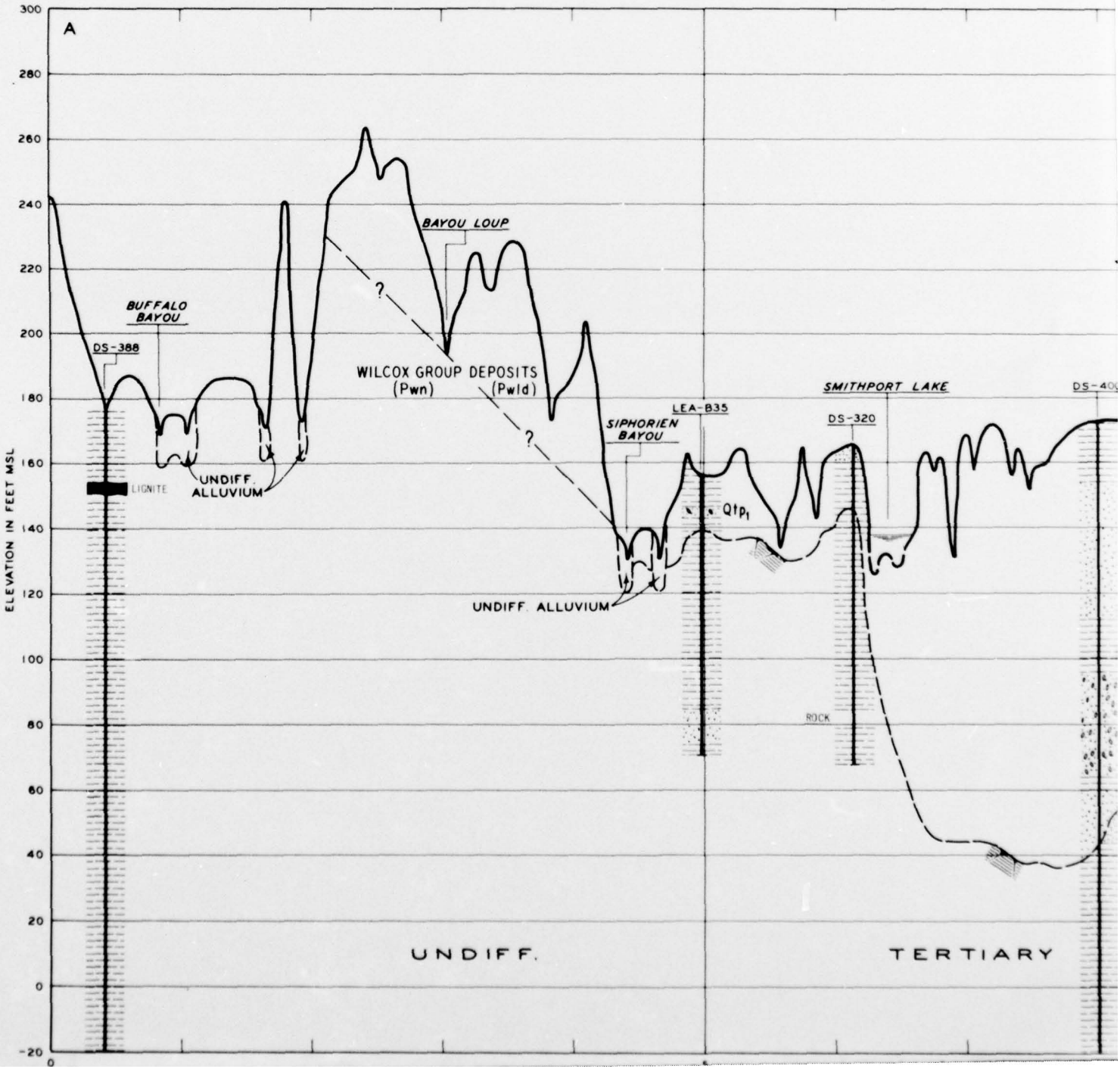
S SCIENTIST)

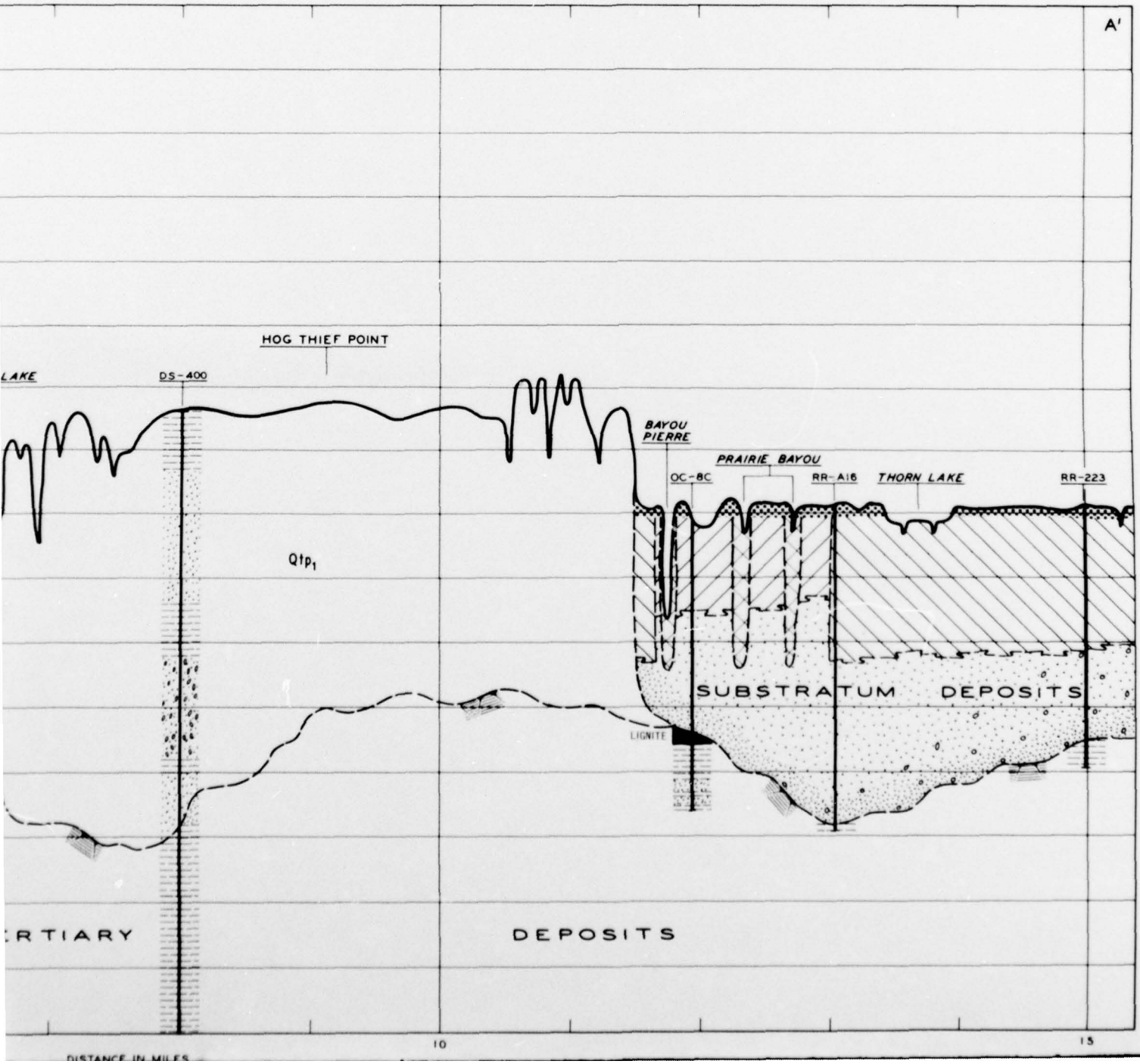
Y SOILS SCIENTIST)
IARY SURFACE

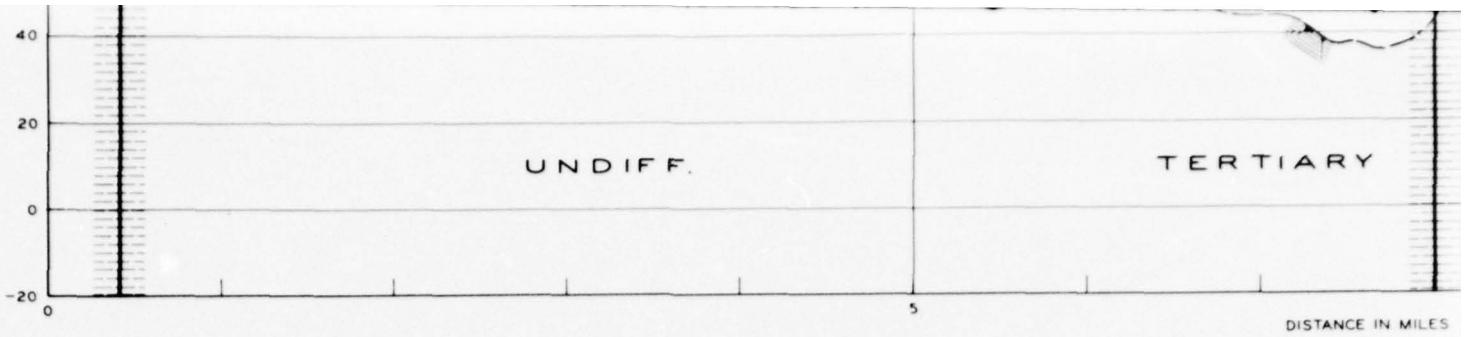
Y SOILS SCIENTIST)

GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
MANSFIELD, LA.

4


A
ELEVATION IN FEET MSL
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
BUFFALO BAYOU
DS-388
LIGNITE
UNDIFF. ALLUVIUM
BAYOU LOUP
WILCOX GROUP DEPOSITS
(Pwn)
(Pwld)
?
?
SIPHORIEN BAYOU
LEA-835
SMITHPORT LAKE
DS-320
DS-40
Qtp1
UNDIFF. ALLUVIUM
ROCK
UNDIFF.
TERTIARY


A'
HOG THIEF POINT
LAKE
DS-400
BAYOU PIERRE
PRAIRIE BAYOU
OC-8C
RR-A16
THORN LAKE
RR-223
Qtp1
SUBSTRATUM DEPOSITS
LIGNITE
RTIARY
DEPOSITS
10
15
DISTANCE IN MILES



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL

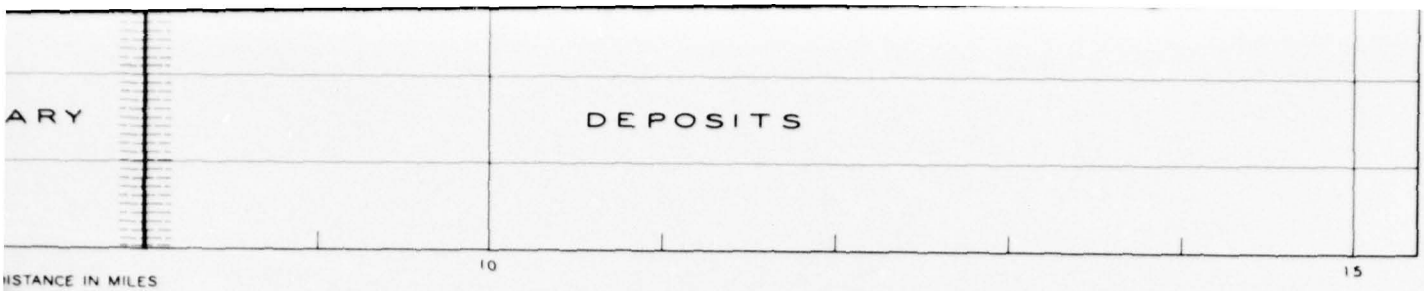
TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SAND AND GRAVEL

MAPPING SYMBOLS

- Qtp1 — PRAIRIE TERRACE-UPPER SURFACE
- Pwld — WILCOX GROUP DEPOSITS (LOGANSPORT FORMATION)
- Pwn — WILCOX GROUP DEPOSITS (NABORTON FORMATION)



GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

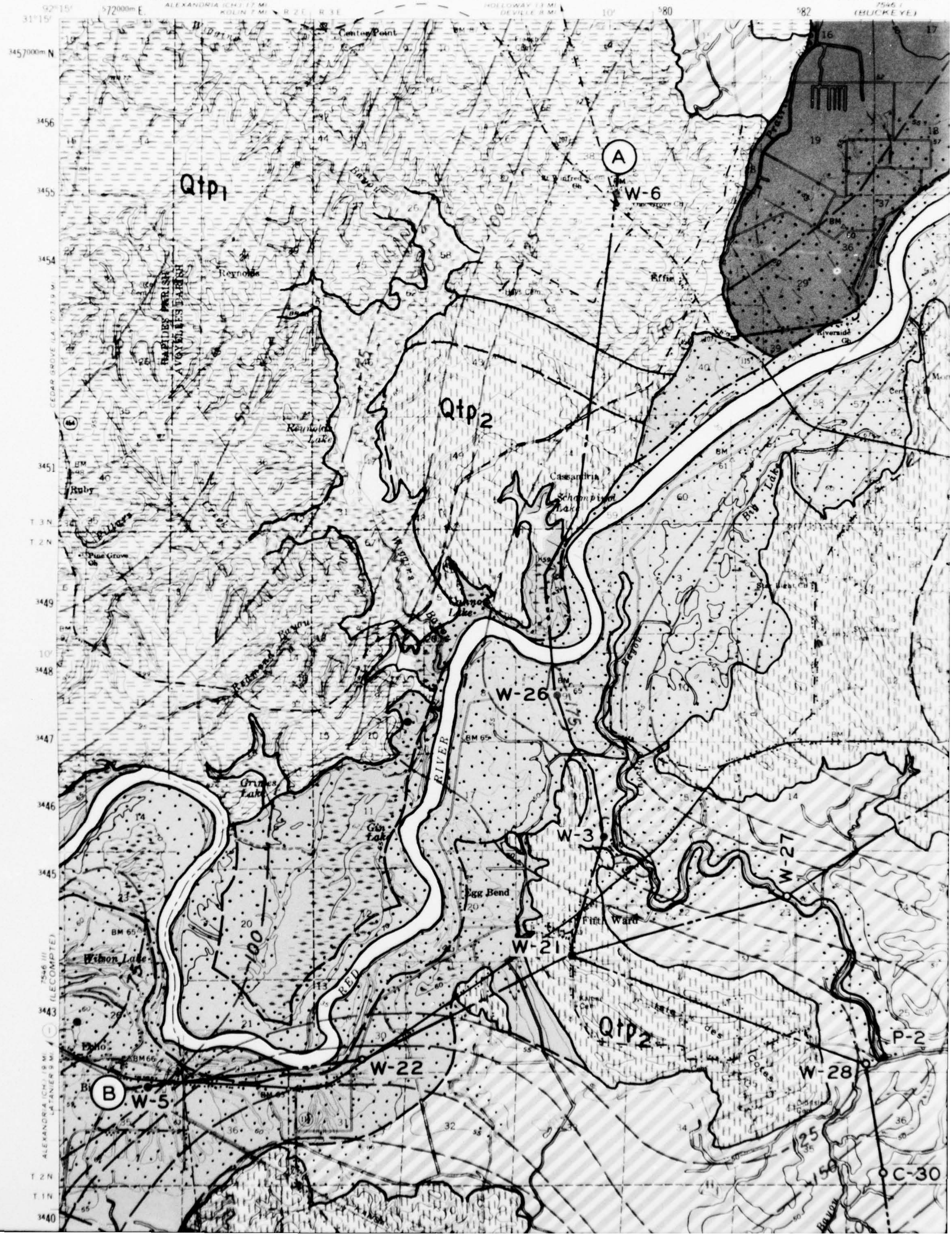
SECTION A-A'

MANSFIELD, LA.

4

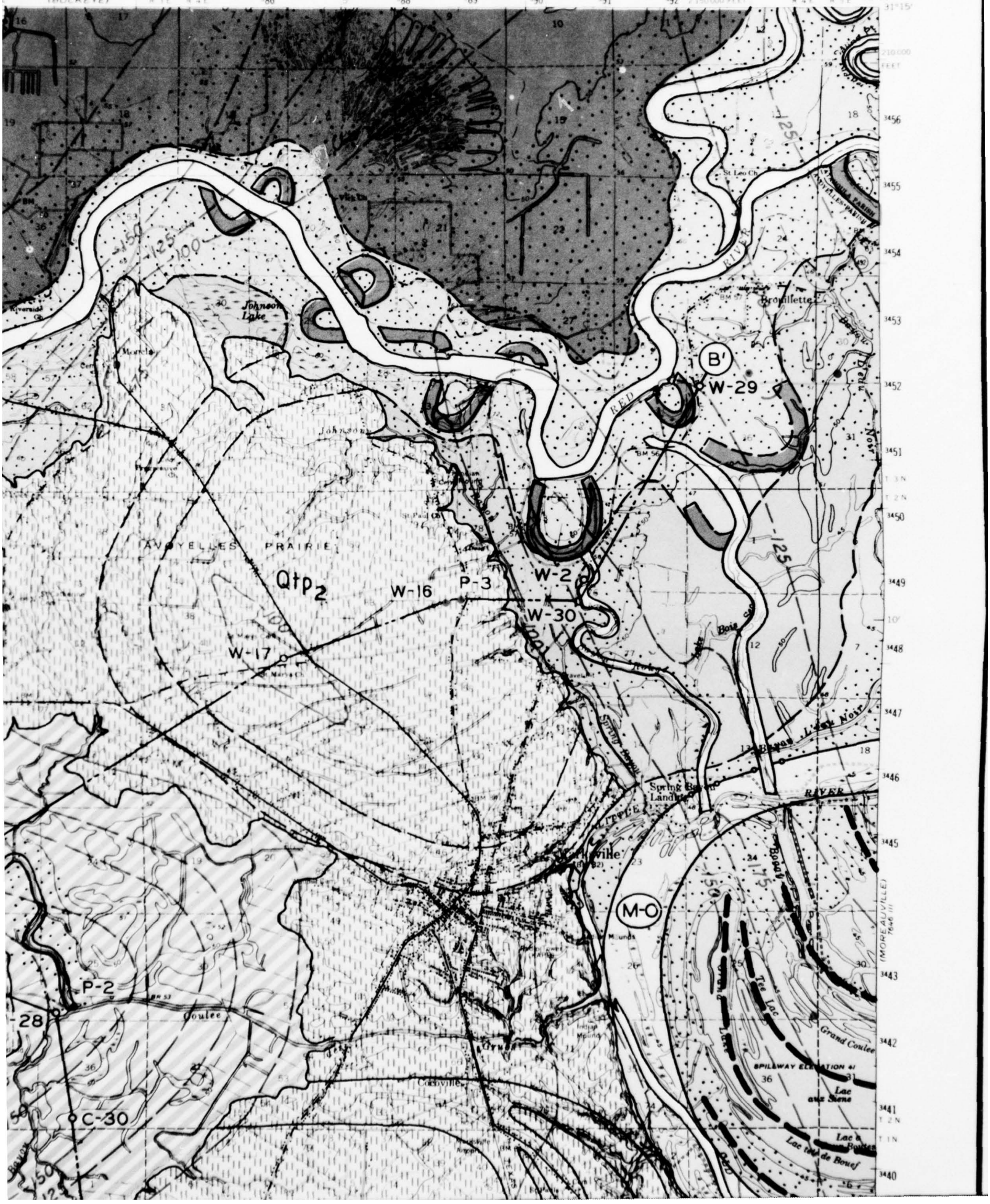
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

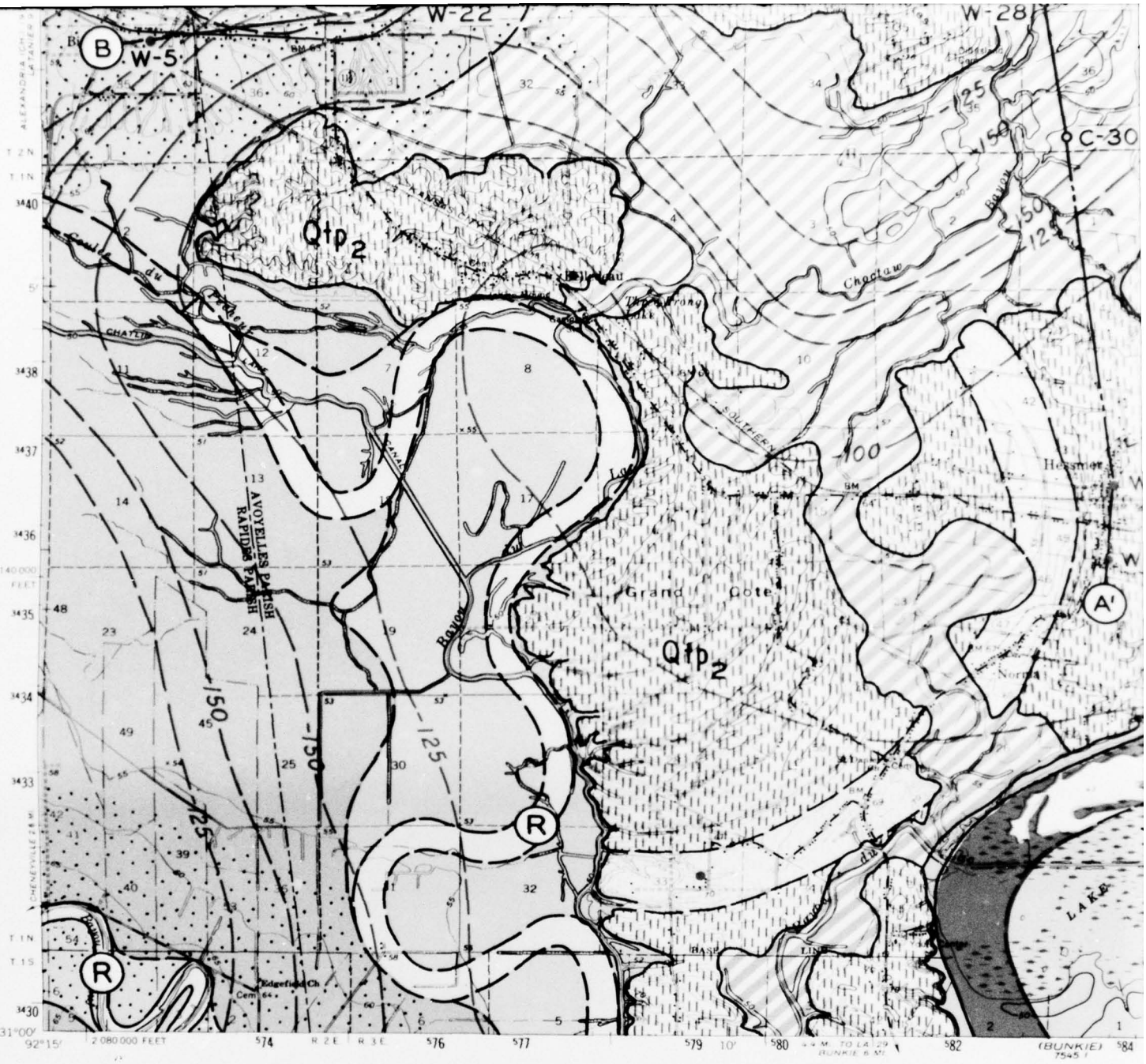
STATE OF LOUISIAN
DEPARTMENT OF PUBLIC
BATON ROUGE



STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE

MARKSVILLE QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)





LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- MAJOR CREVASSE CHANNELS
- UNDIFFERENTIATED ALLUVIUM OF SMALL CREEKS
- THIN BACKSWAMP DEPOSITS (<30') OVERLYING BURIED MEANDER BELT DEPOSITS OF PLEISTOCENE AGE

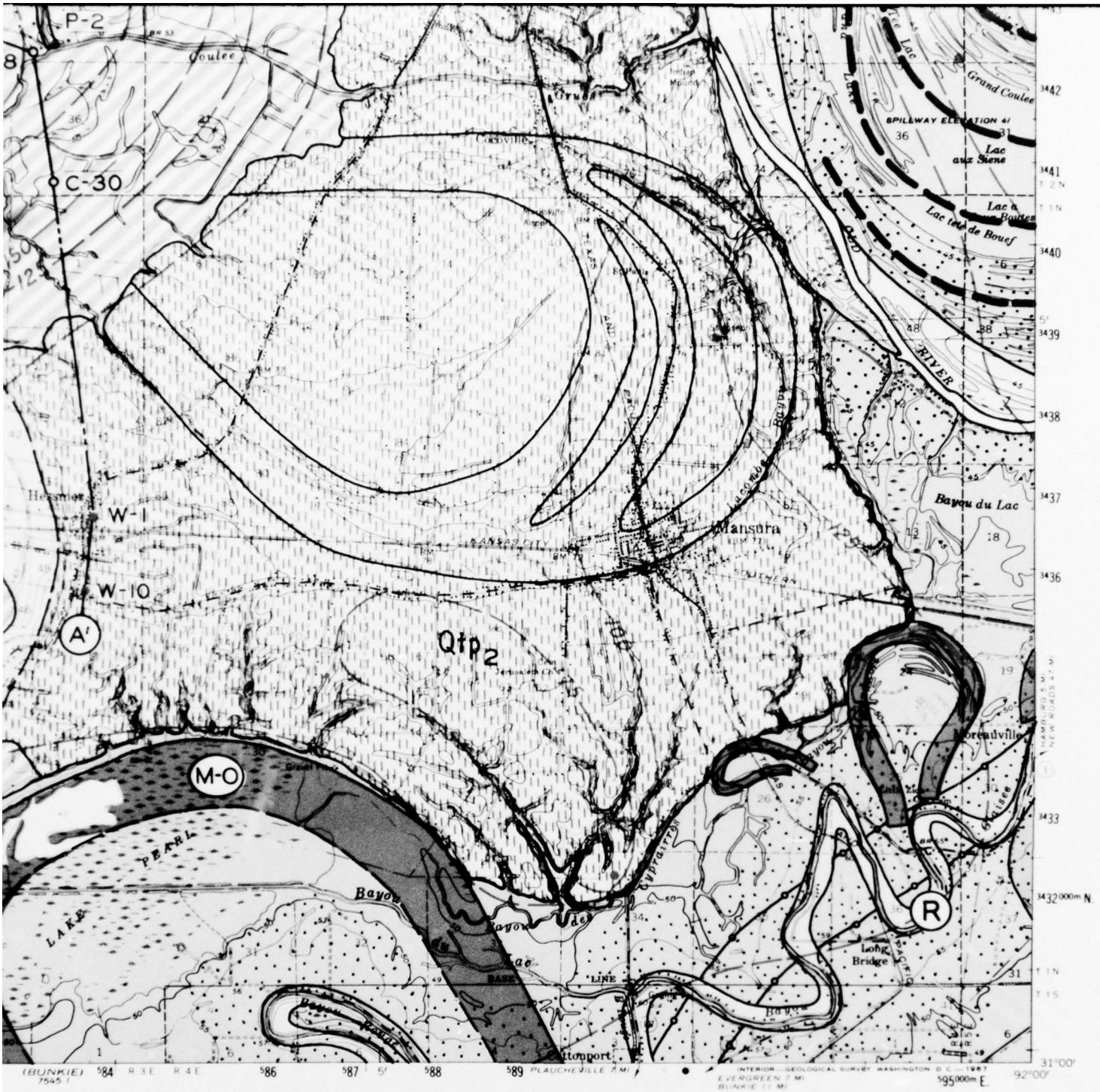
PLEISTOCENE

- BRAIDED STREAM SURFACE
- Dtp_L PRAIRIE TERRACE-UPPER SURFACE
- Dtp_{L2} PRAIRIE TERRACE-LOWER SURFACE
- ABANDONED CHANNEL
- ABANDONED COURSE

- (M-O) COMBINED FLOW-MISSISSIPPI AND OHIO RIVERS
- (R) RED RIVER

- SELECTED SWALES INDICATING TRENDS OF MEANDERS
- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABAND REWORKED BY SUBSEQUENT ME A STREAM
- ELEVATION OF TOP OF TERTIA SURFACE IN FEET MSL
- CLASS I BORING (LOGGED BY SC USED TO CONTOUR BURIED TER
- CLASS I BORING (LOGGED BY SC NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED USED TO CONTOUR BURIED TER
- CLASS II BORING (NOT LOGGED NOT REACHING TERTIARY

3



SCALE 1:62500

4 MILES

21000 FEET

5 KILOMETERS

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

ALES INDICATING
ANDERS

ONTACT

SITION OF ABANDONED COURSE
SUBSEQUENT MEANDERING OF

F TOP OF TERTIARY
EET MSL

G (LOGGED BY SOILS SCIENTIST)
OUR BURIED TERTIARY SURFACE

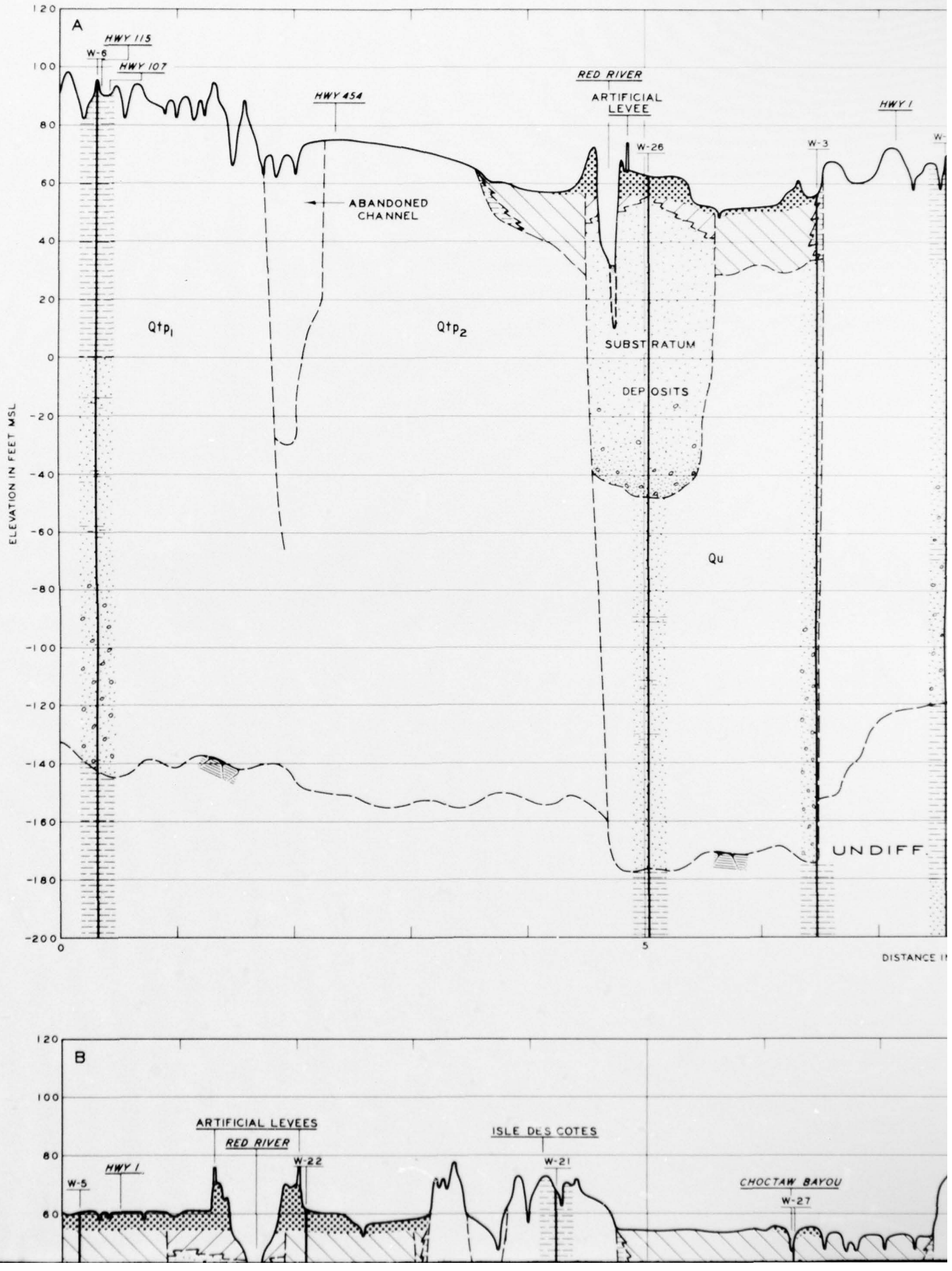
G (LOGGED BY SOILS SCIENTIST)
S TERTIARY

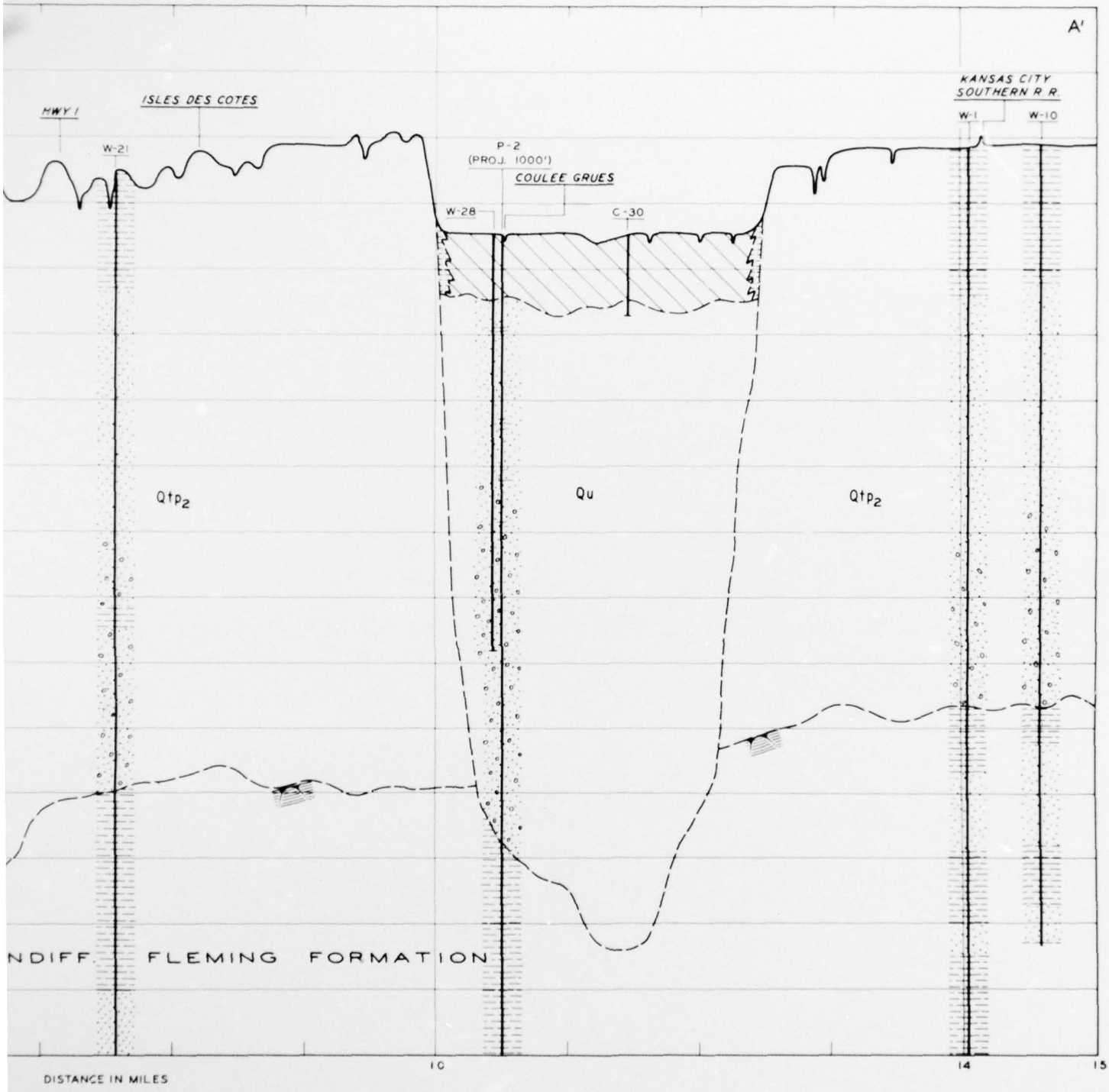
NG (NOT LOGGED BY SOILS SCIENTIST)
OUR BURIED TERTIARY SURFACE

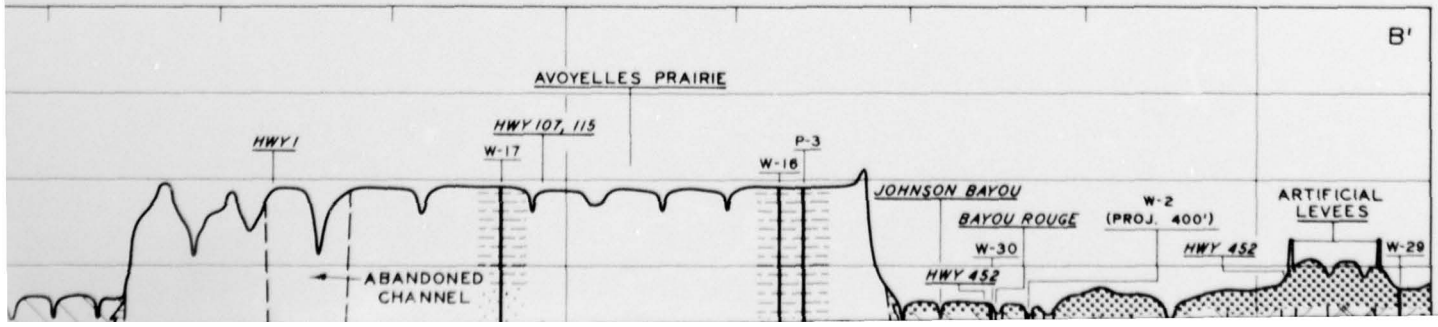
NG (NOT LOGGED BY SOILS SCIENTIST)
S TERTIARY

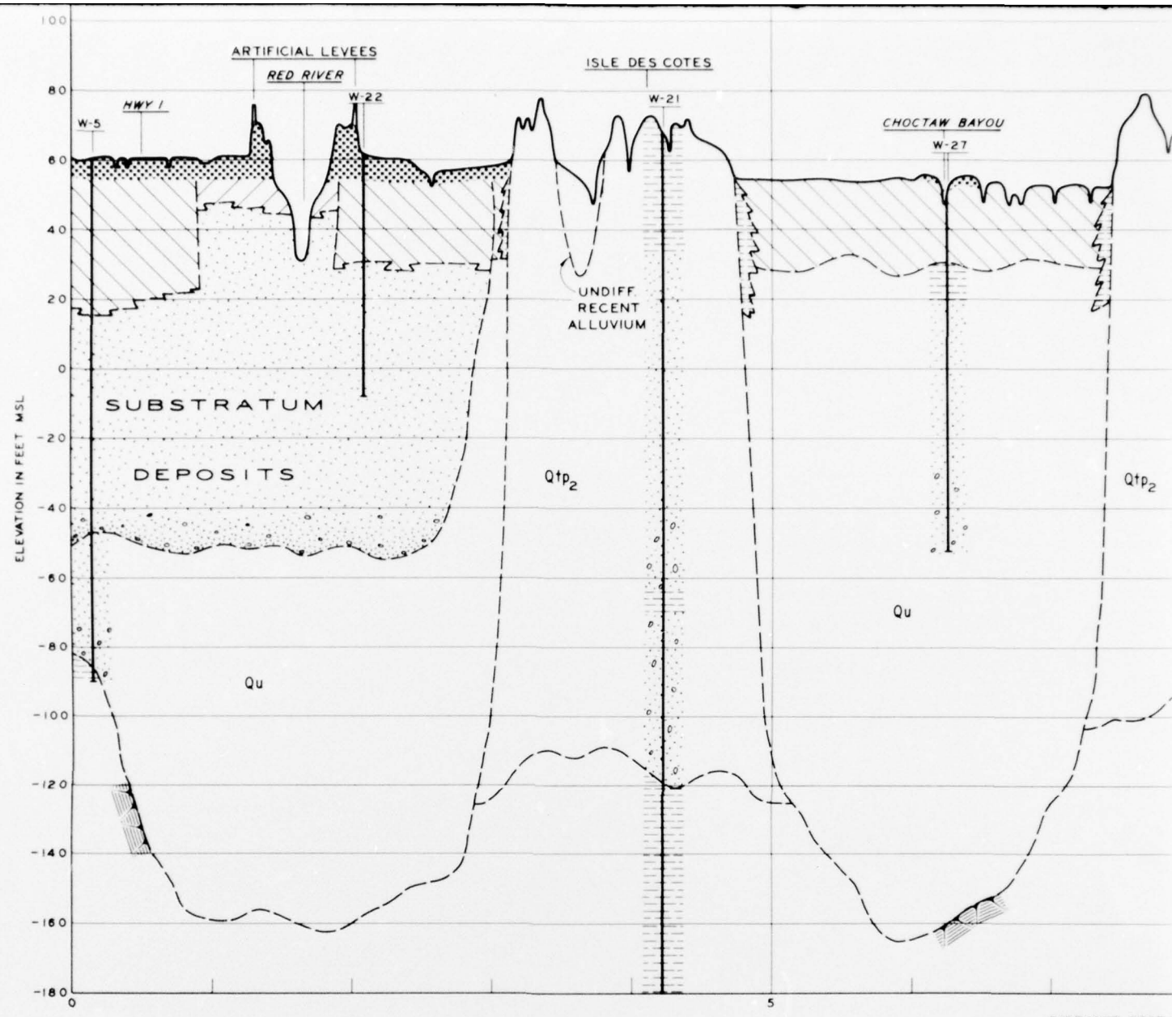
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
MARKSVILLE, LA.

4


A
HWY 115
W-6
HWY 107
HWY 454
RED RIVER
ARTIFICIAL LEVEE
HWY 1
W-26
W-3
ABANDONED CHANNEL
Qtp1
Qtp2
SUBSTRATUM
DEPOSITS
Qu
UNDIFF.
ELEVATION IN FEET MSL
120
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
0
5
DISTANCE I
B
ARTIFICIAL LEVEES
RED RIVER
W-22
ISLE DES COTES
W-21
HWY 1
W-5
CHOCTAW BAYOU
W-27


A'
HWY 1
ISLES DES COTES
KANSAS CITY SOUTHERN R.R.
W-21
P-2
(PROJ. 1000')
COULEE GRUES
W-1
W-10
W-28
C-30
Qtp2
Qu
Qtp2
NDIFF. FLEMING FORMATION
10
14
15
DISTANCE IN MILES


B'
AVOYELLES PRAIRIE
HWY 1
HWY 107, 115
W-17
P-3
W-16
JOHNSON BAYOU
BAYOU ROUGE
W-2
(PROJ. 400')
ARTIFICIAL LEVEES
W-30
HWY 452
HWY 452
W-29
ABANDONED CHANNEL



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- COLLUVIAL APRON

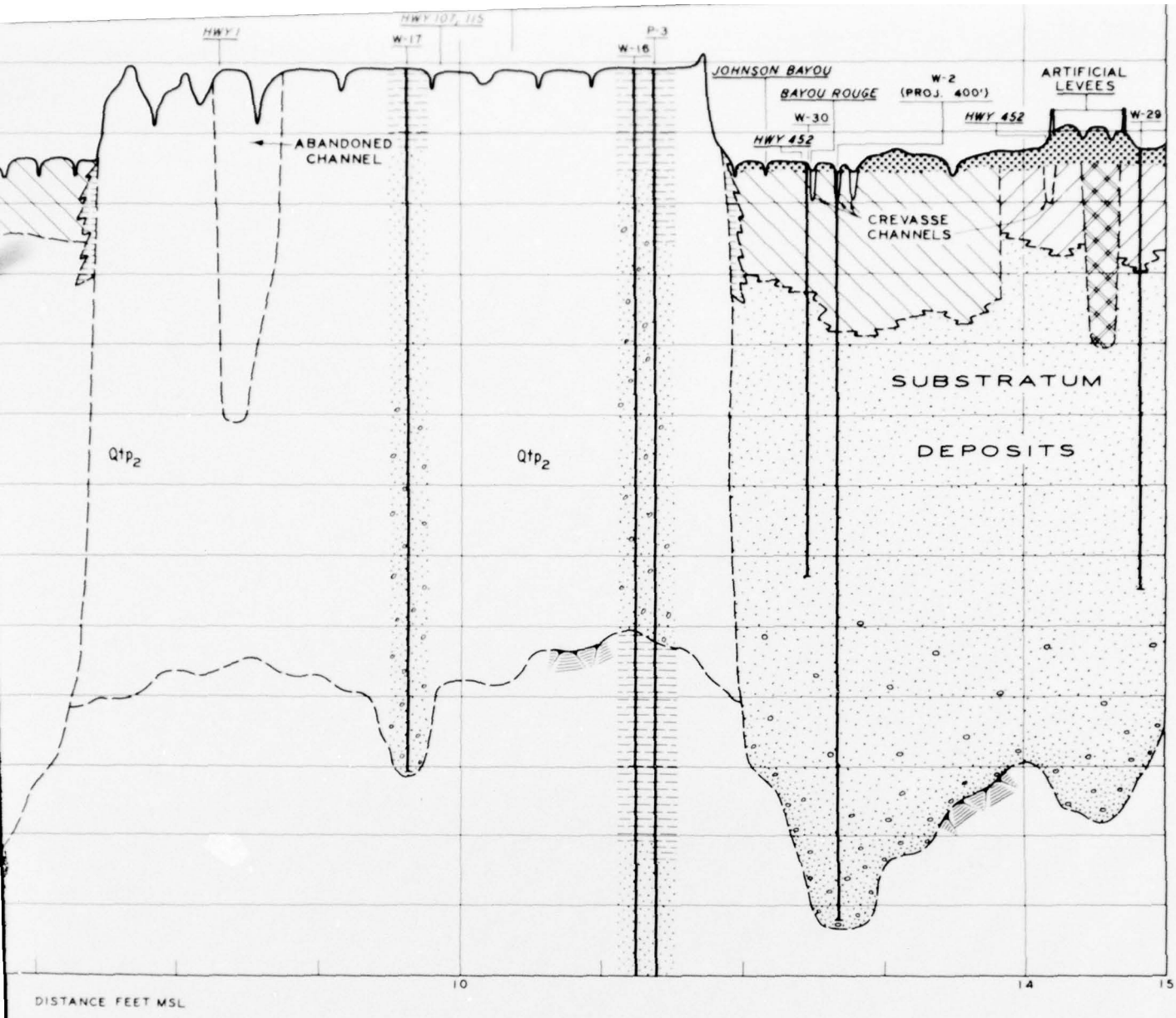
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SAND AND GRAVEL

MAPPING SYMBOLS

- Qtp_1 PRAIRIE TERRACE-UPPER SURFACE
- Qtp_2 PRAIRIE TERRACE-LOWER SURFACE
- Qu UNDIFFERENTIATED PLEISTOCENE DEPOSITS-FLUVIAL



GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

SECTIONS A-A' AND B-B'

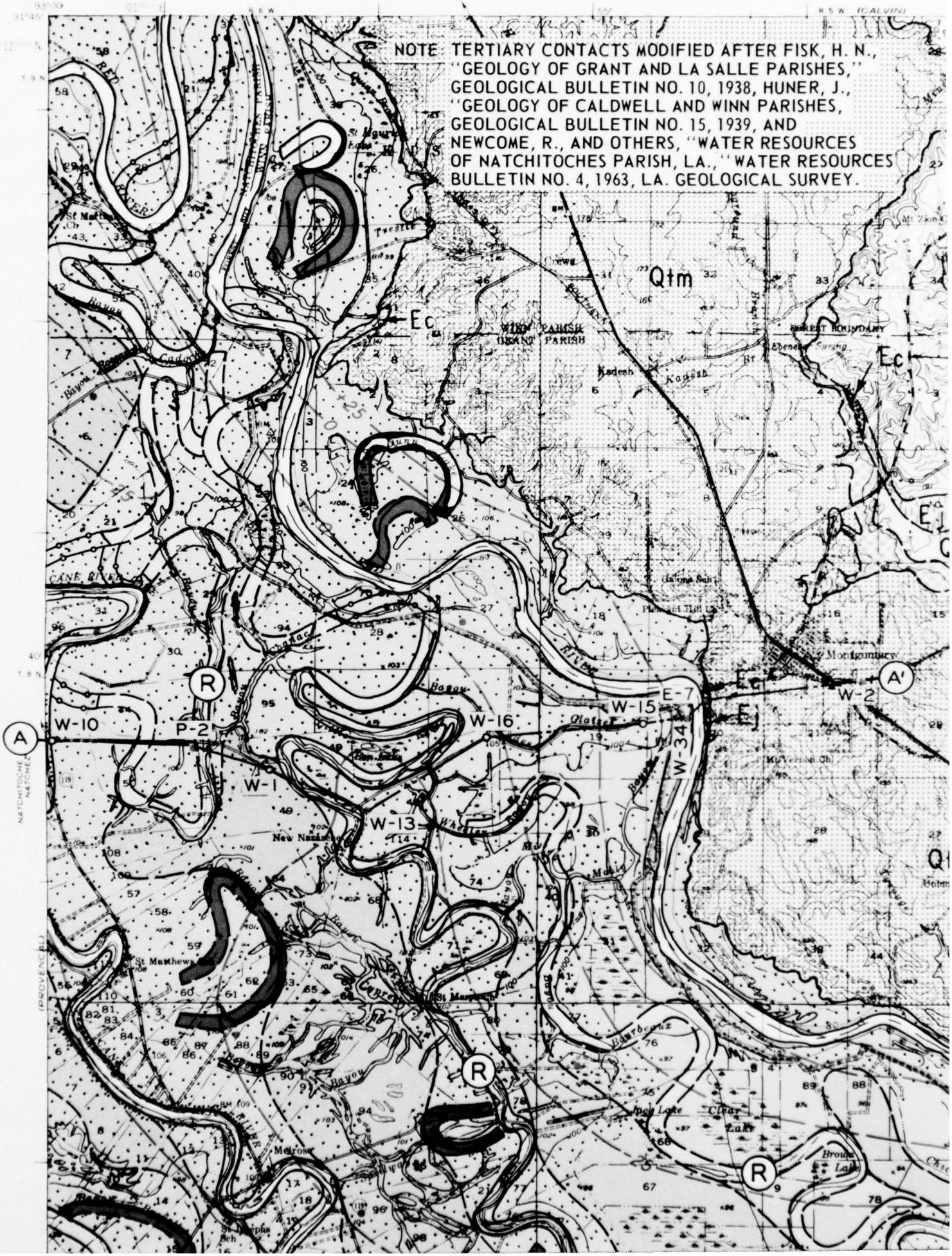
MARKSVILLE, LA.

4

MARKSVILLE (b)

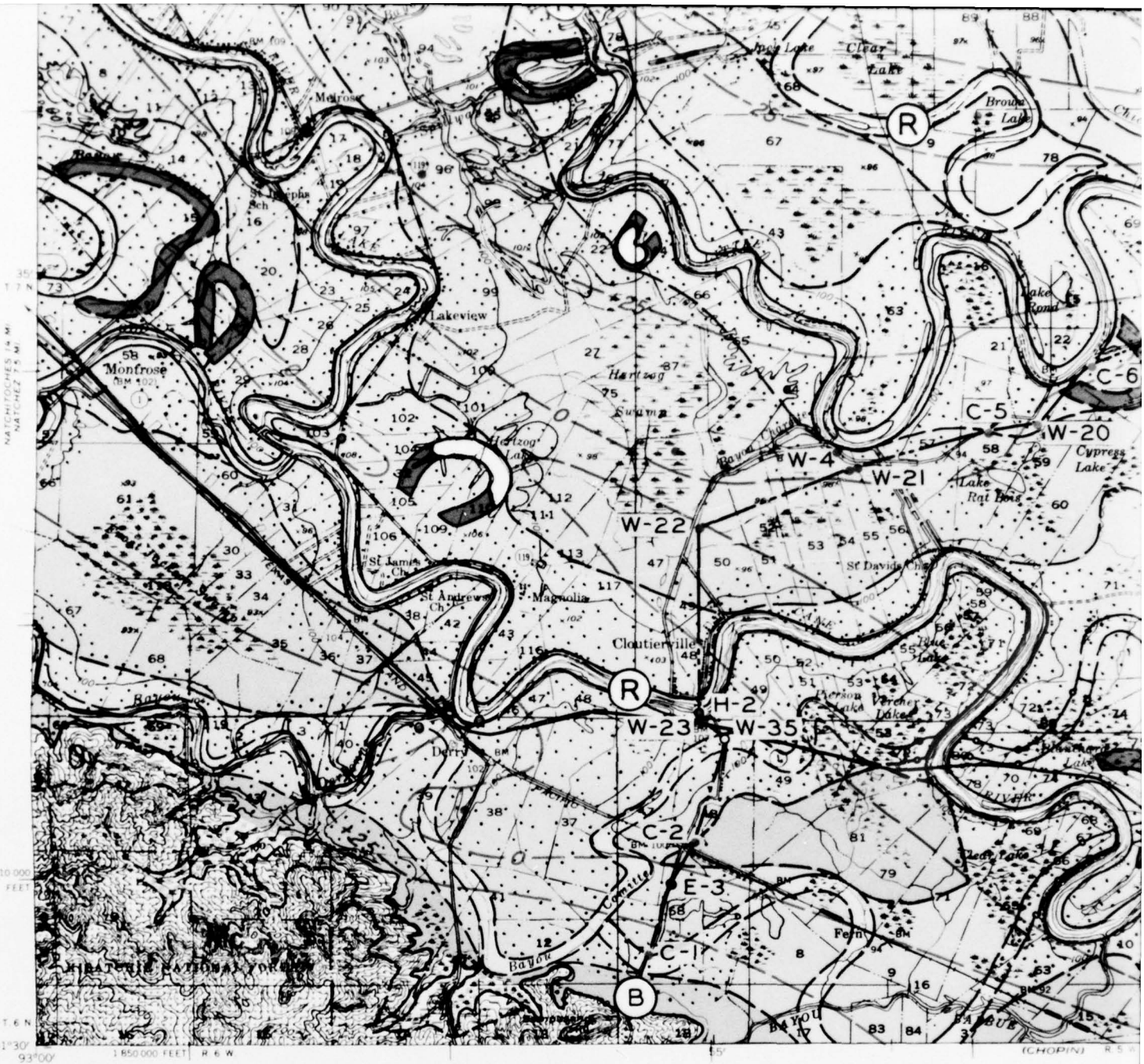
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE



UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

MONTGOMERY QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL CREEKS

PLEISTOCENE

- Qtp1 — PRAIRIE TERRACE-UPPER SURFACE
- Qtp2 — PRAIRIE TERRACE-LOWER SURFACE
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

TERTIARY

MIOCENE

- Mc — CATAHOULA FORMATION

OLIGOCENE

- Ov — VICKSBURG GROUP

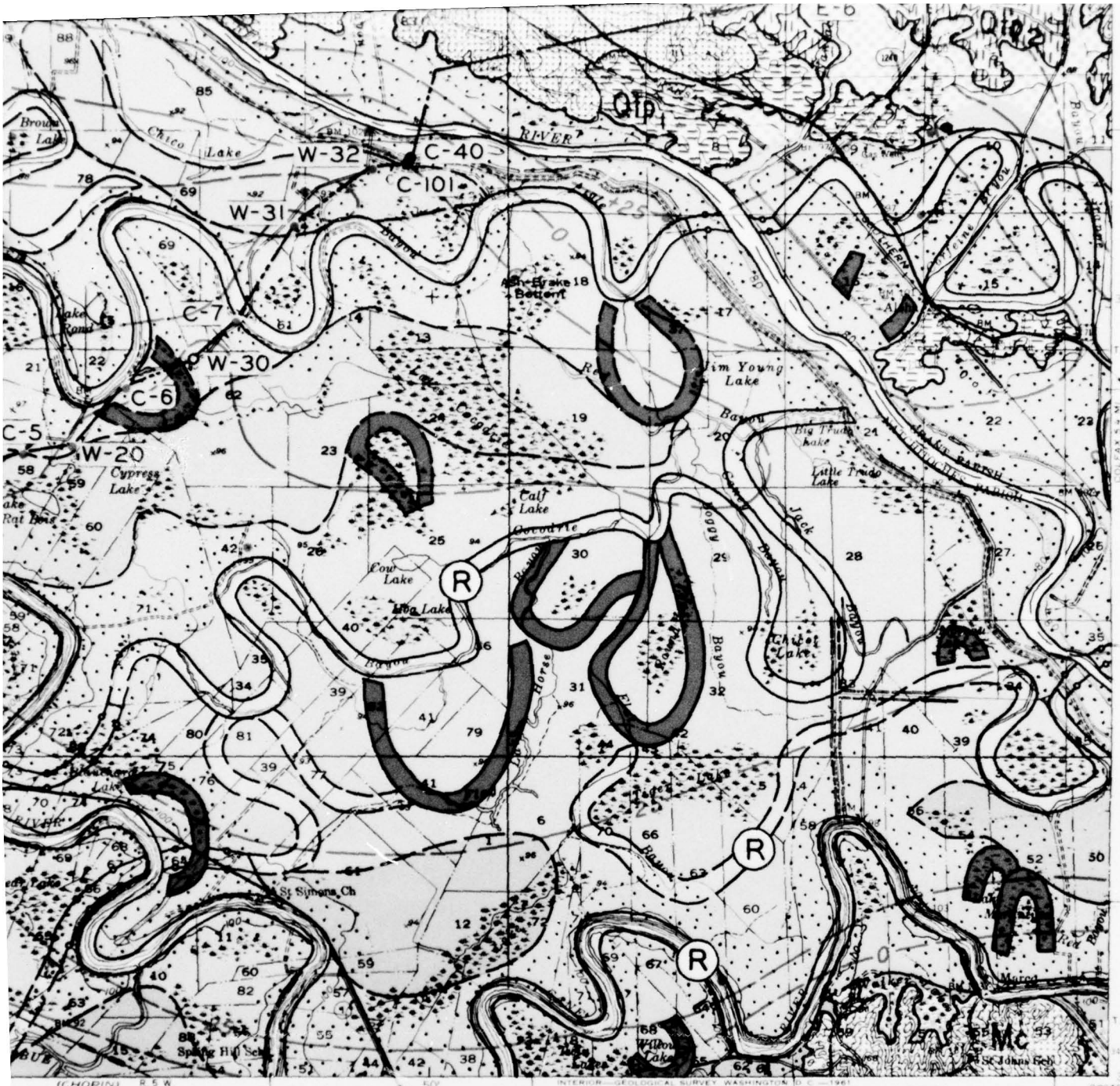
EOCENE

- Ej — JACKSON GROUP
- Ec — CLAIBORNE GROUP

(R) RED RIVER

- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED COURSE REWORKED BY SUBSEQUENT MEANDERING OF A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST USED TO CONTOUR BURIED TERTIARY SURFAC
- CLASS I BORING (LOGGED BY SOILS SCIENTIST NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN USED TO CONTOUR BURIED TERTIARY SURFAC
- O CLASS II BORING (NOT LOGGED BY SOILS SCIEN NOT REACHING TERTIARY

3



SCALE 1:62500

4 MILES

21000 FEET

5 KILOMETERS

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

BANDONED
BSEQUENT
M

ERTIARY

BY SOILS SCIENTIST)
D TERTIARY SURFACE

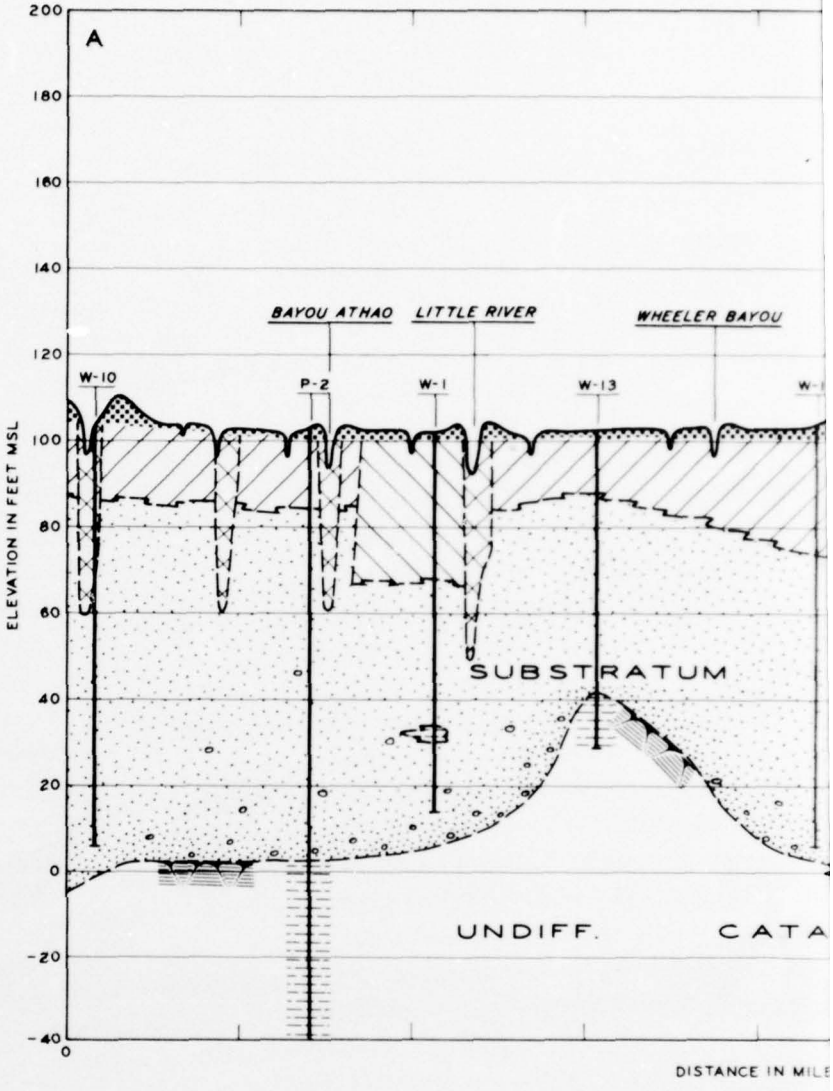
RY SOILS SCIENTIST)

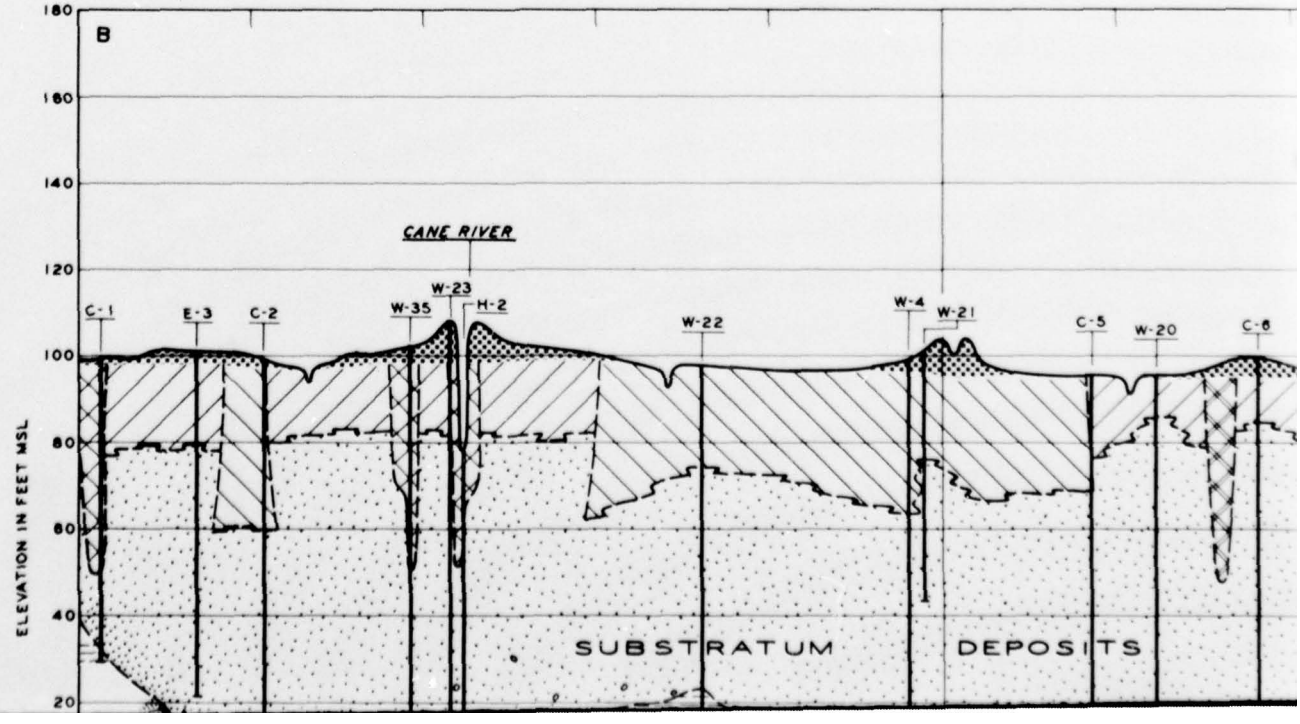
GED BY SOILS SCIENTIST)
D TERTIARY SURFACE

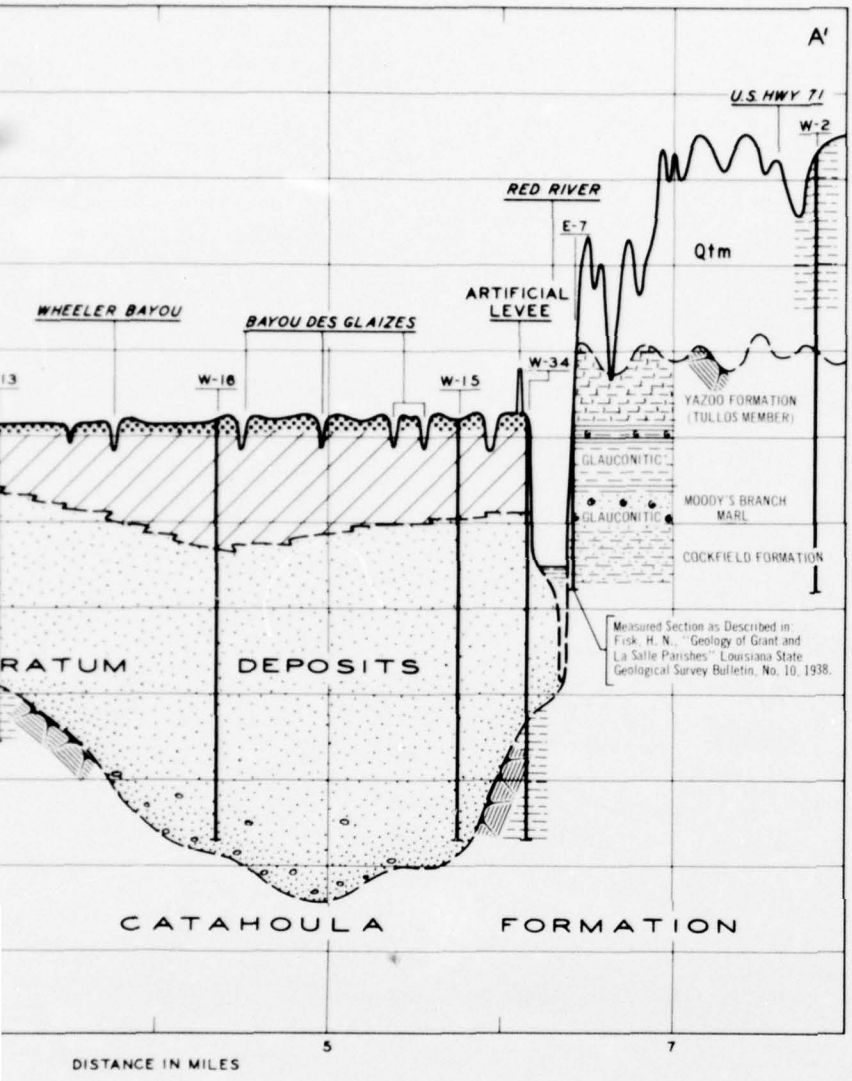
GED BY SOILS SCIENTIST)

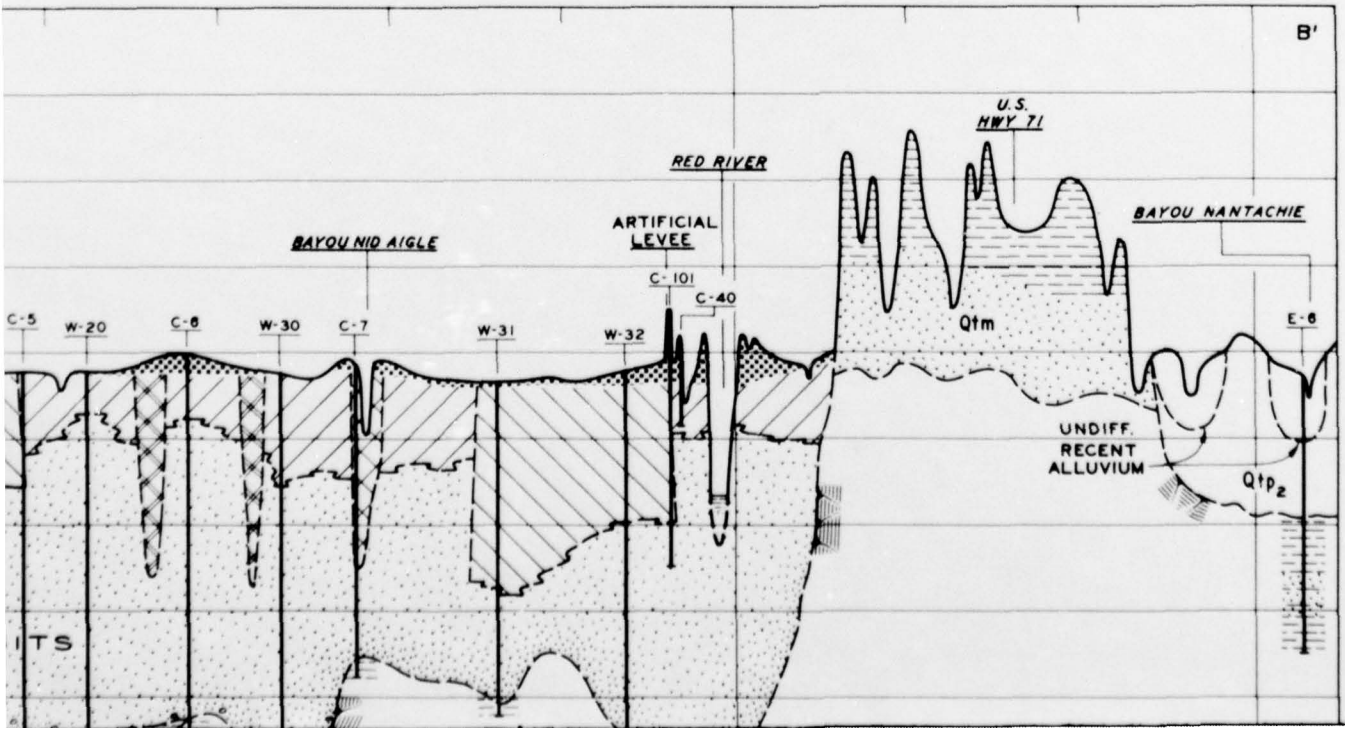
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
MONTGOMERY, LA.

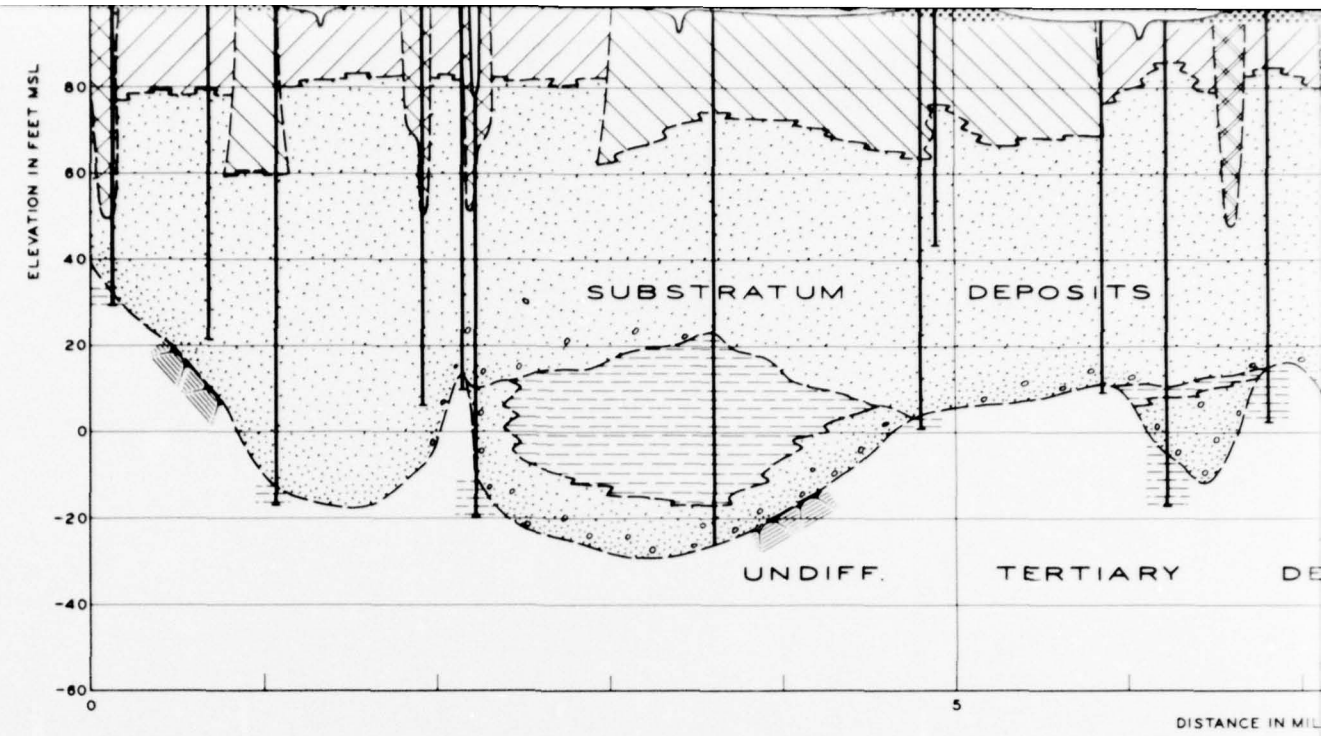
4


A
200
180
160
140
120
100
80
60
40
20
0
-20
-40
ELEVATION IN FEET MSL
BAYOU ATHAO
LITTLE RIVER
WHEELER BAYOU
W-10
P-2
W-1
W-13
SUBSTRATUM
UNDIFF.
CATA
0
DISTANCE IN MILE


B
180
160
140
120
100
80
60
40
20
ELEVATION IN FEET MSL
CANE RIVER
C-1
E-3
C-2
W-35
W-23
H-2
W-22
W-4
W-21
C-5
W-20
C-6
SUBSTRATUM
DEPOSITS


A'
U.S. HWY 71
W-2
RED RIVER
E-7
Qtm
ARTIFICIAL LEVEE
WHEELER BAYOU
BAYOU DES GLAIZES
W-34
W-16
W-15
YAZOO FORMATION (TULLOS MEMBER)
GLAUCONITIC
MOODY'S BRANCH MARL
GLAUCONITIC
COCKFIELD FORMATION
Measured Section as Described in: Fisk, H. N., "Geology of Grant and La Salle Parishes" Louisiana State Geological Survey Bulletin, No. 10, 1938.
RATUM DEPOSITS
CATAHOULA FORMATION
5
7
DISTANCE IN MILES


B'
U.S. HWY 71
RED RIVER
ARTIFICIAL LEVEE
BAYOU NID AIGLE
BAYOU NANTACHIE
C-101
C-40
C-5
W-20
C-6
W-30
C-7
W-31
W-32
E-6
Qtm
UNDIFF. RECENT ALLUVIUM
Qtp2
ITS



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

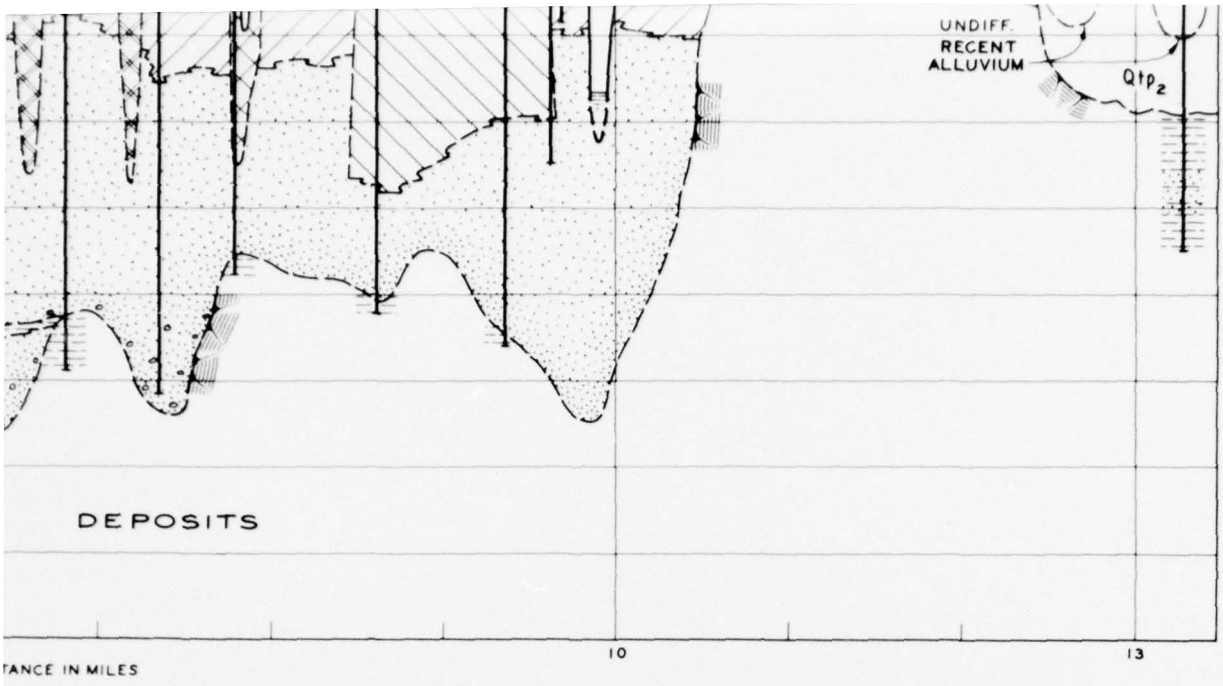
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- LIMESTONE
- MARL
- FOSSILIFEROUS
- SAND AND GRAVEL

MAPPING SYMBOLS

- Qtp_2 PRAIRIE TERRACE - LOWER SURFACE
- Qtm MONTGOMERY TERRACE

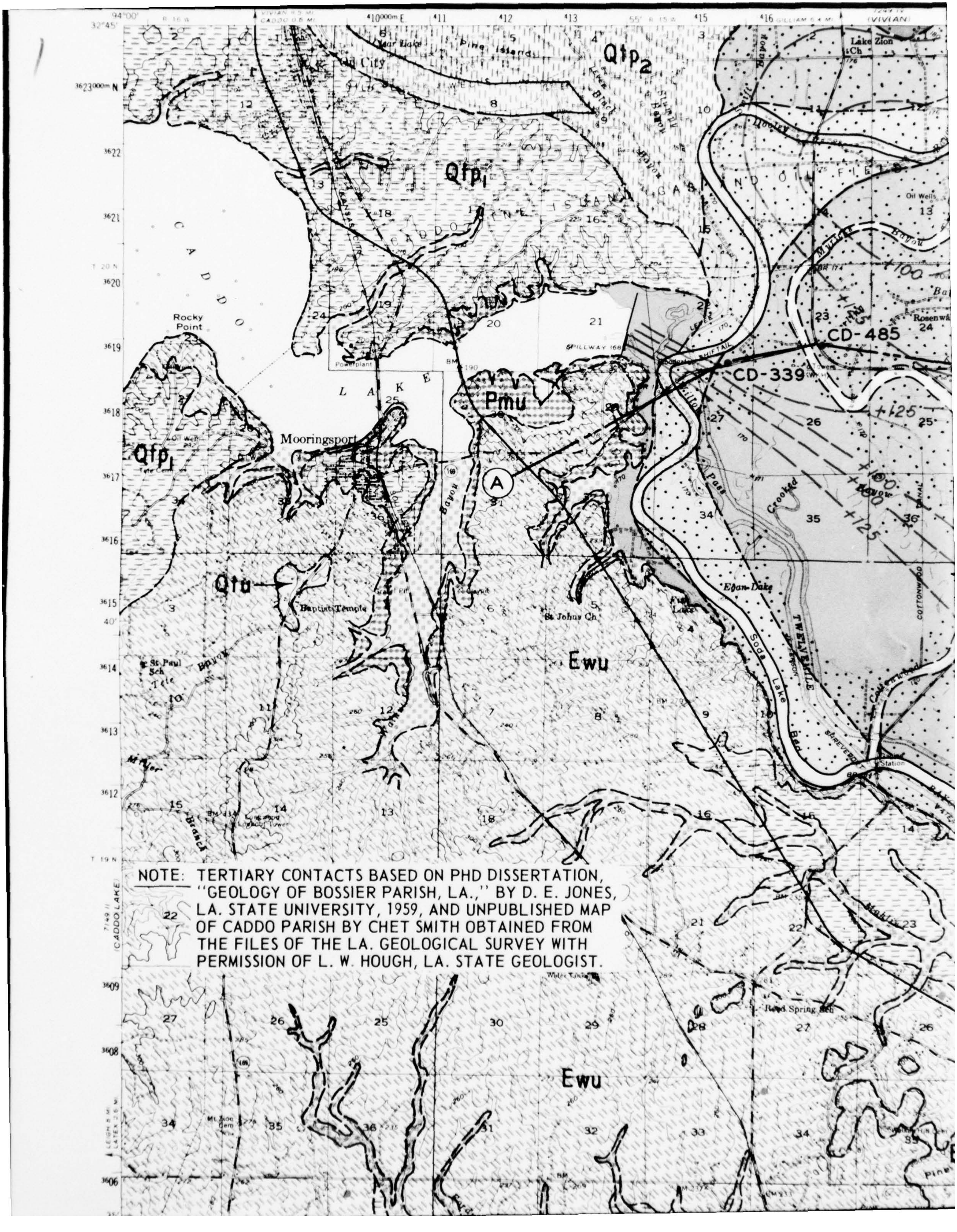


GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

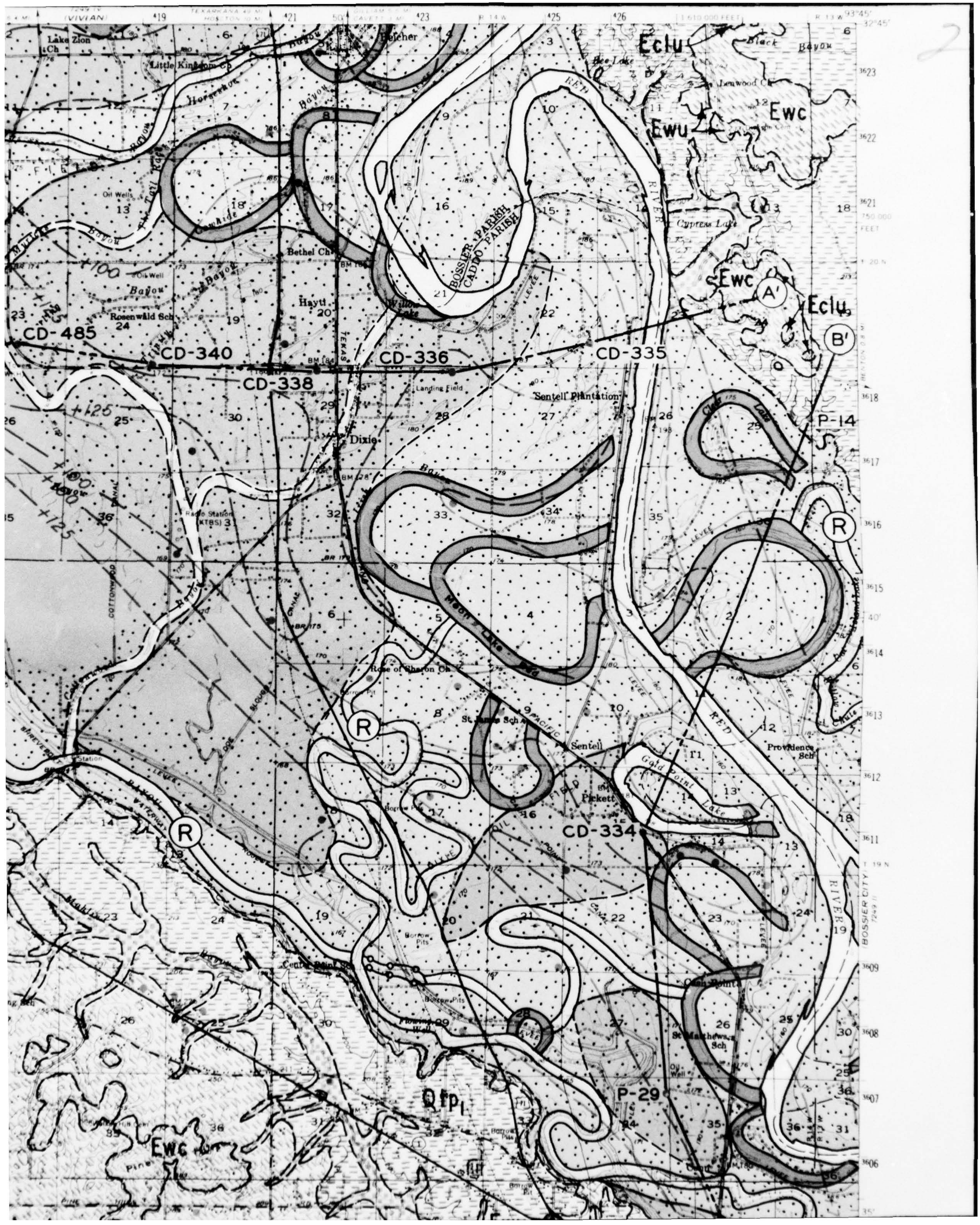
SECTIONS A-A' AND B-B'

MONTGOMERY, LA.

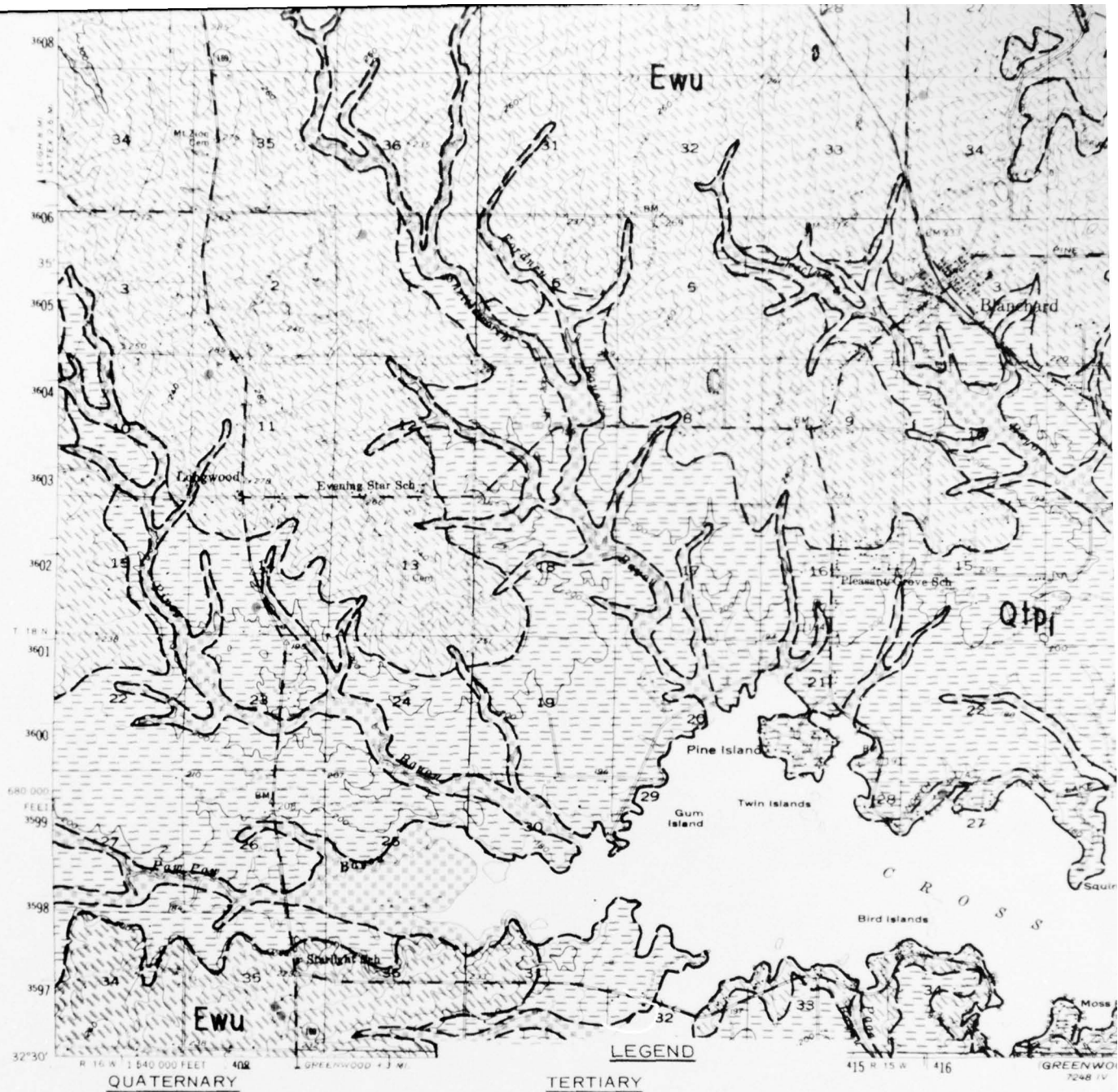
4



NOTE: TERTIARY CONTACTS BASED ON PHD DISSERTATION, "GEOLOGY OF BOSSIER PARISH, LA.," BY D. E. JONES, LA. STATE UNIVERSITY, 1959, AND UNPUBLISHED MAP OF CADDO PARISH BY CHET SMITH OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
Qfp2
Qfp1
Qtu
Pmu
Ewu
CD-485
CD-339
A
CADDO LAKE
Rocky Point
Mooringsport
Baptist Temple
St Johns Ch
St Paul Sch
Powerplant
SPILLWAY 168
Egan Lake
Soda Lake
Crooked Bayou
Lake Zion Ch
Reed Spring Sch
+100
+125



(VIVIAN)
TEXARKANA 49 MI
HOSSTON 10 MI
1 610 000 FEET
R 14 W
R 13 W
93°45'
32°45'
750 000 FEET
T 20 N
T 19 N
40'
35'
BOSSIER CITY
7249 II
Eclu
Ewc
Ewu
Qfp1
Ewc
Eclu
CD-485
CD-340
CD-338
CD-336
CD-335
CD-334
P-14
P-29
A'
B'
R
R
R
Lake Zion Ch
Little Kingdom Ch
Belcher
Oil Wells
Oil Well
Bethel Ch
Hayti
Rosenwald Sch
Dixie
Landing Field
BOSSIER PARISH
CADDO PARISH
RED RIVER
RIVER
Bee Lake
Black Bayou
Lenwood Ch
Cypress Lake
Sentell Plantation
Radio Station (KTBS)
COTTONWOOD
CANAL
Rose of Sharon Ch
Borrow Pit
St James Sch
PACIFIC
Sentell
Pickett
Gold Point Lake
Providence Sch
LEVEE
Borrow Pits
Flowing Well
Cash Point
St Matthews Sch
Oil Well
Station
+100
+125



3

MOORINGSPORT (a)

ONTACT

OSITION OF ABANDONED
RKED BY SUBSEQUENT
OF A STREAM

F TOP OF TERTIARY
EET-MSL

G (LOGGED BY SOILS SCIENTIST)
TOUR BURIED TERTIARY SURFACE

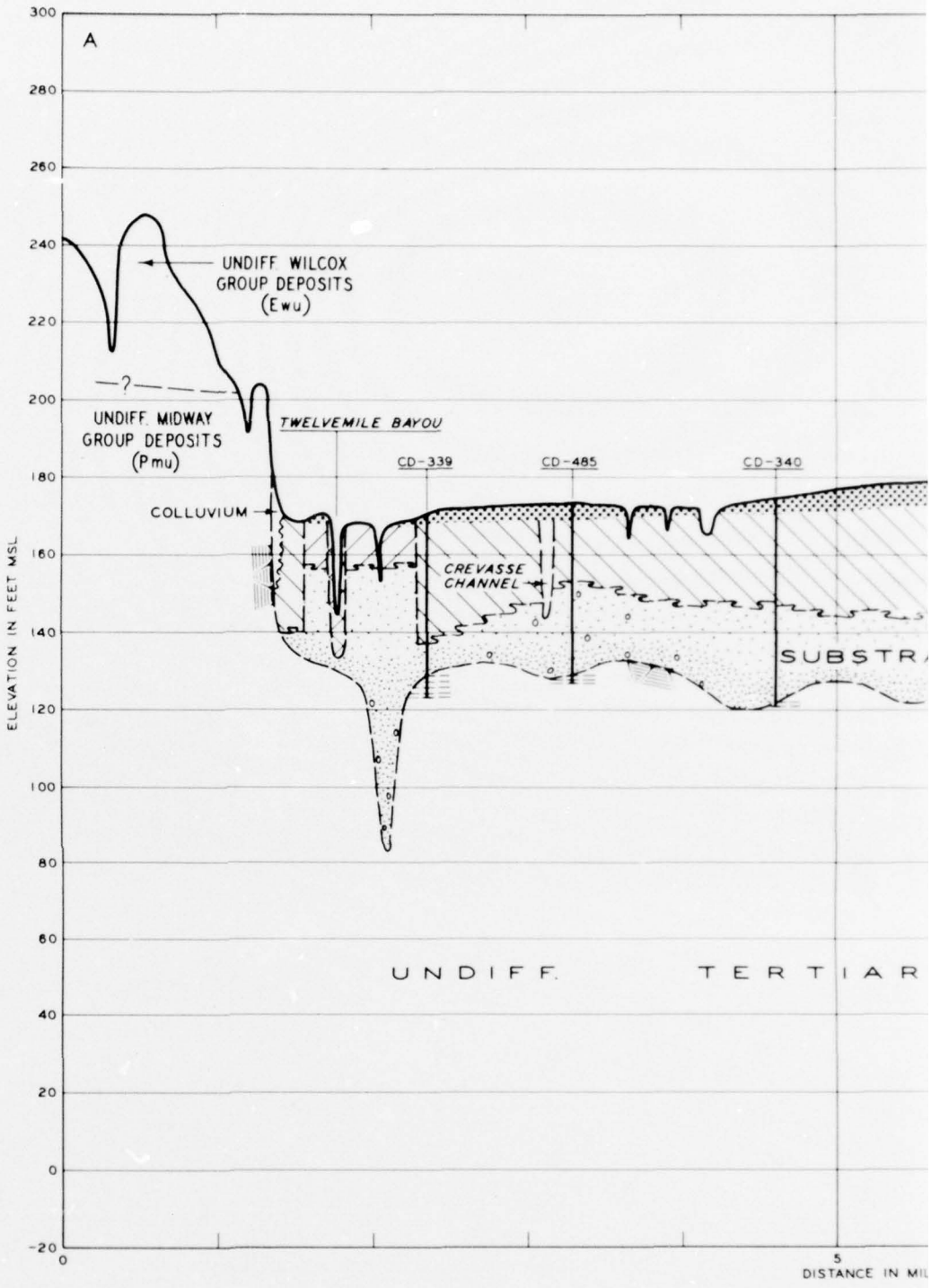
G (LOGGED BY SOILS SCIENTIST)
G TERTIARY

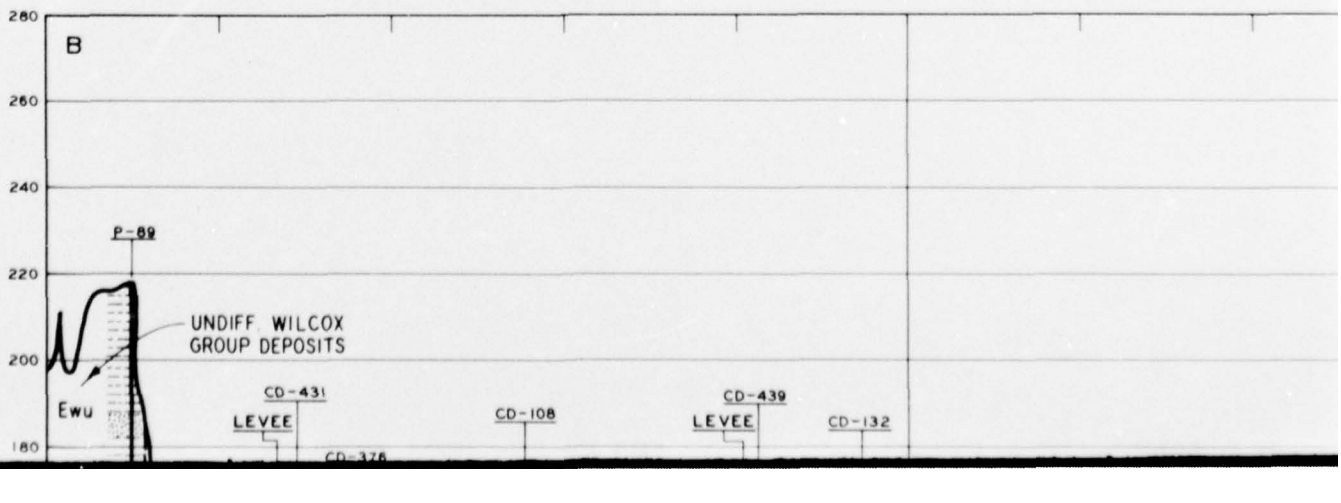
NG (NOT LOGGED BY SOILS SCIENTIST)
TOUR BURIED TERTIARY SURFACE

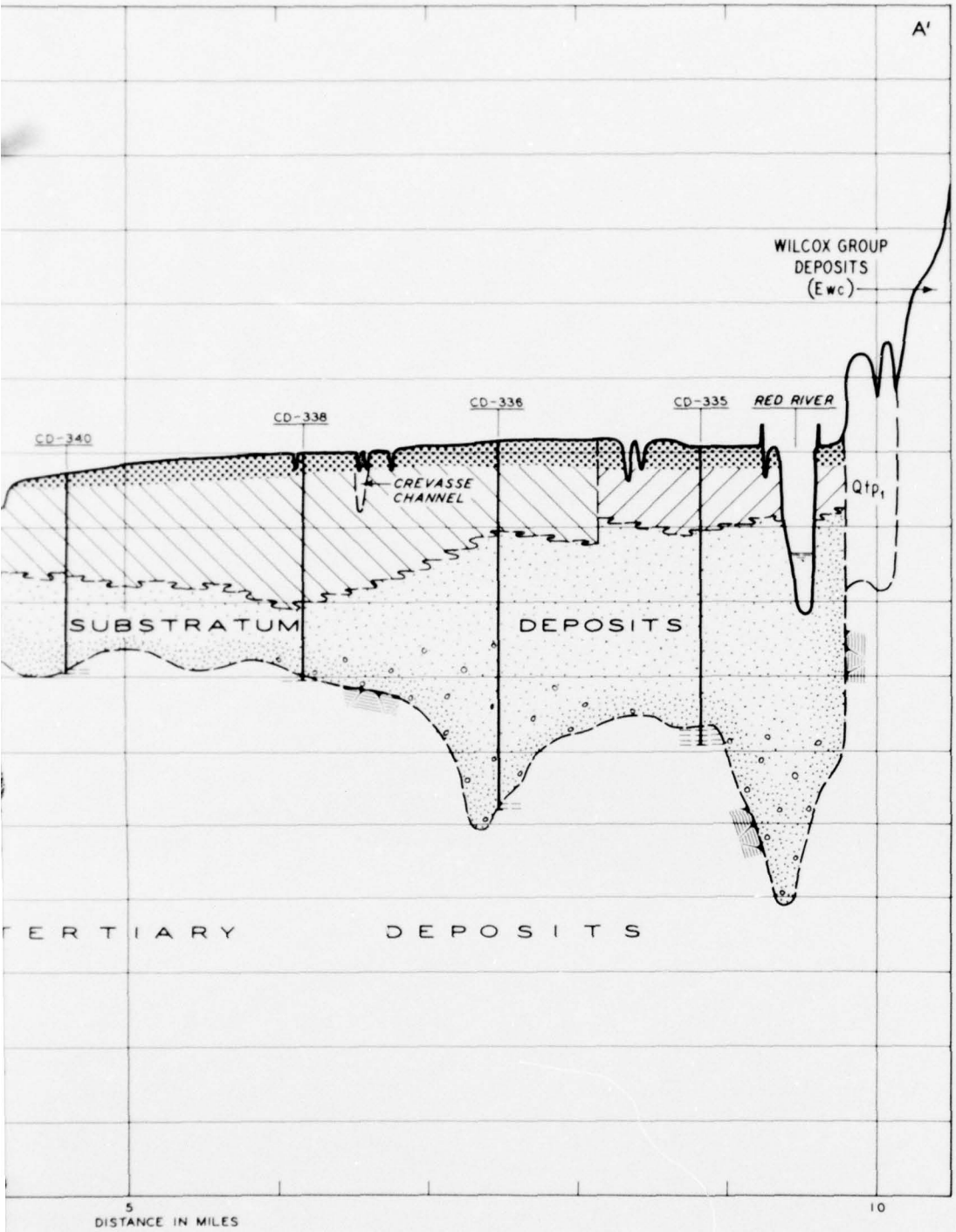
NG (NOT LOGGED BY SOILS SCIENTIST)
G TERTIARY

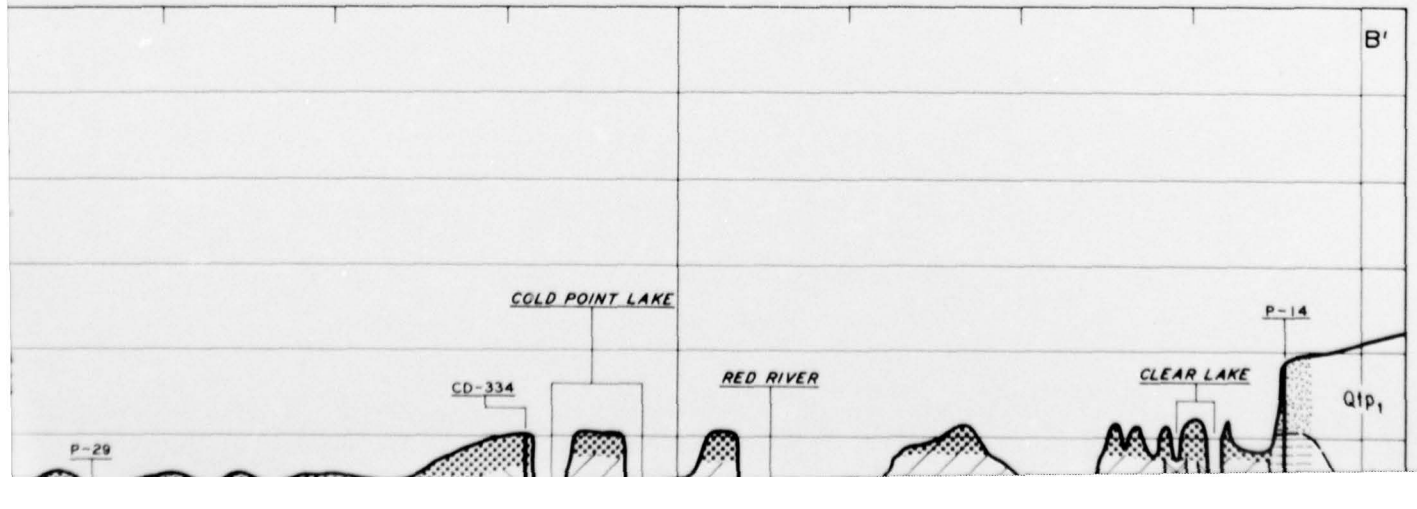
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
MOORINGSPORT, LA.

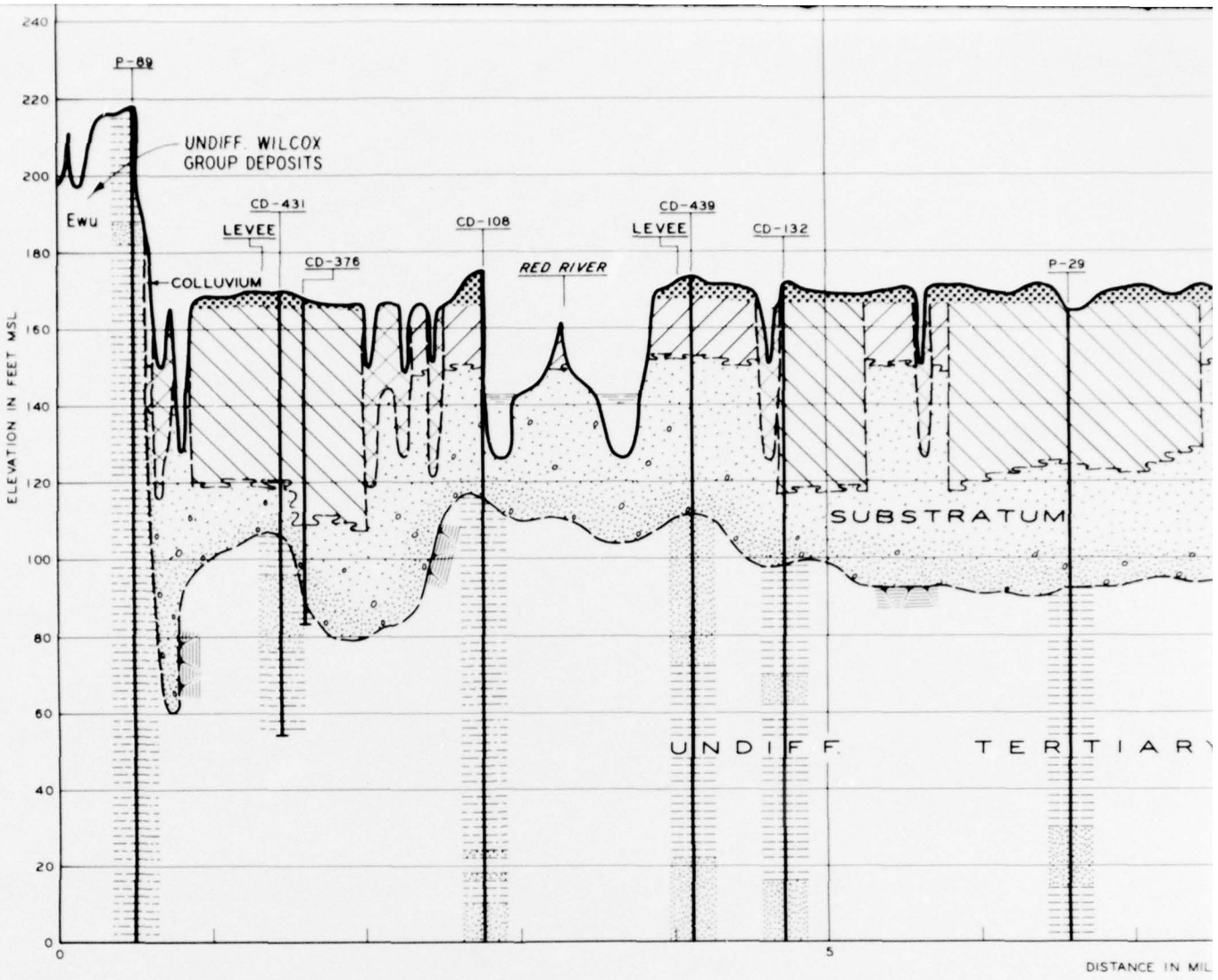
4


A
UNDIFF. WILCOX GROUP DEPOSITS (Ewu)
?
UNDIFF. MIDWAY GROUP DEPOSITS (Pmu)
TWELVEMILE BAYOU
CD-339
CD-485
CD-340
COLLUVIUM
CREVASSE CHANNEL
SUBSTRA
UNDIFF.
TERTIAR
ELEVATION IN FEET MSL
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
0
5
DISTANCE IN MI


B
280
260
240
220
200
180
P-89
UNDIFF. WILCOX GROUP DEPOSITS
Ewu
CD-431
LEVEE
CD-108
CD-439
LEVEE
CD-132
CD-378


A'
WILCOX GROUP
DEPOSITS
(Ewc)
CD-340
CD-338
CD-336
CD-335
RED RIVER
CREVASSE
CHANNEL
Qtp1
SUBSTRATUM
DEPOSITS
TERTIARY
DEPOSITS
5
DISTANCE IN MILES
10


B'
COLD POINT LAKE
CD-334
RED RIVER
P-14
CLEAR LAKE
Qtp1
P-29



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL

TERTIARY SURFACE

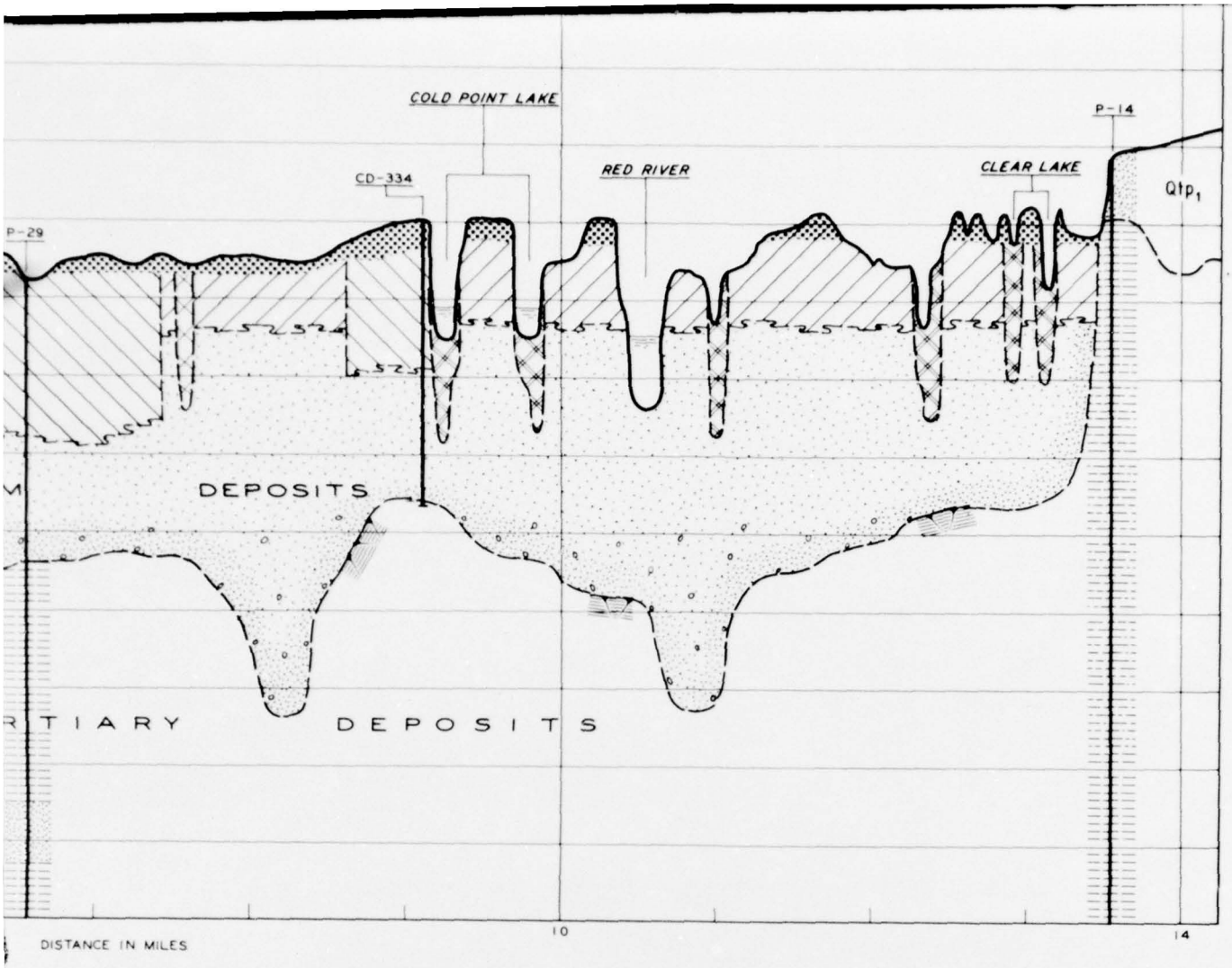
LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

- Qtp_2 PRAIRIE TERRACE-UPPER SURFACE
- Ewu UNDIFFERENTIATED WILCOX GROUP DEPOSITS
- Ewc WILCOX GROUP DEPOSITS (CARRIZO FORMATION)

3

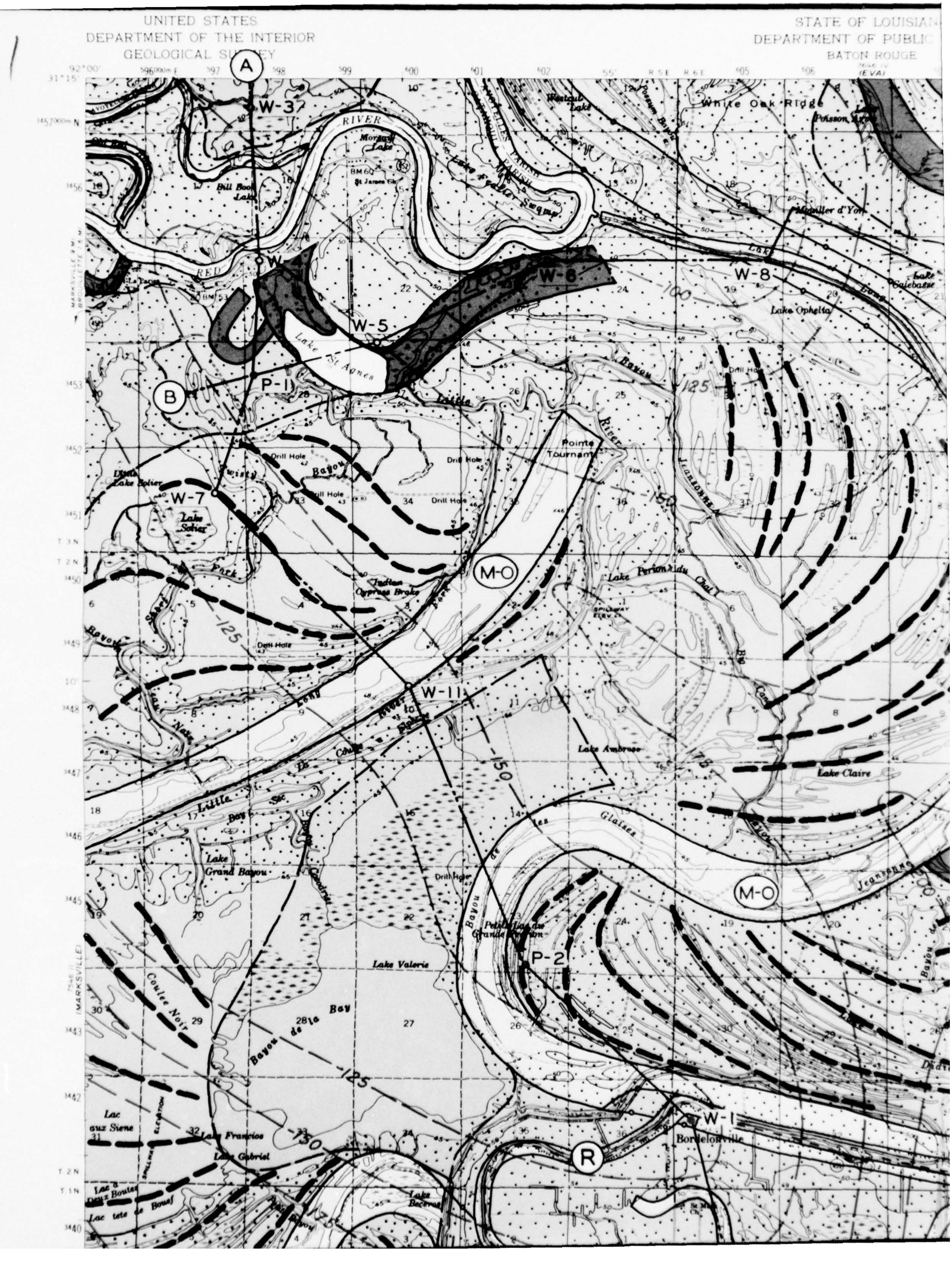


GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

SECTIONS A-A' AND B-B'

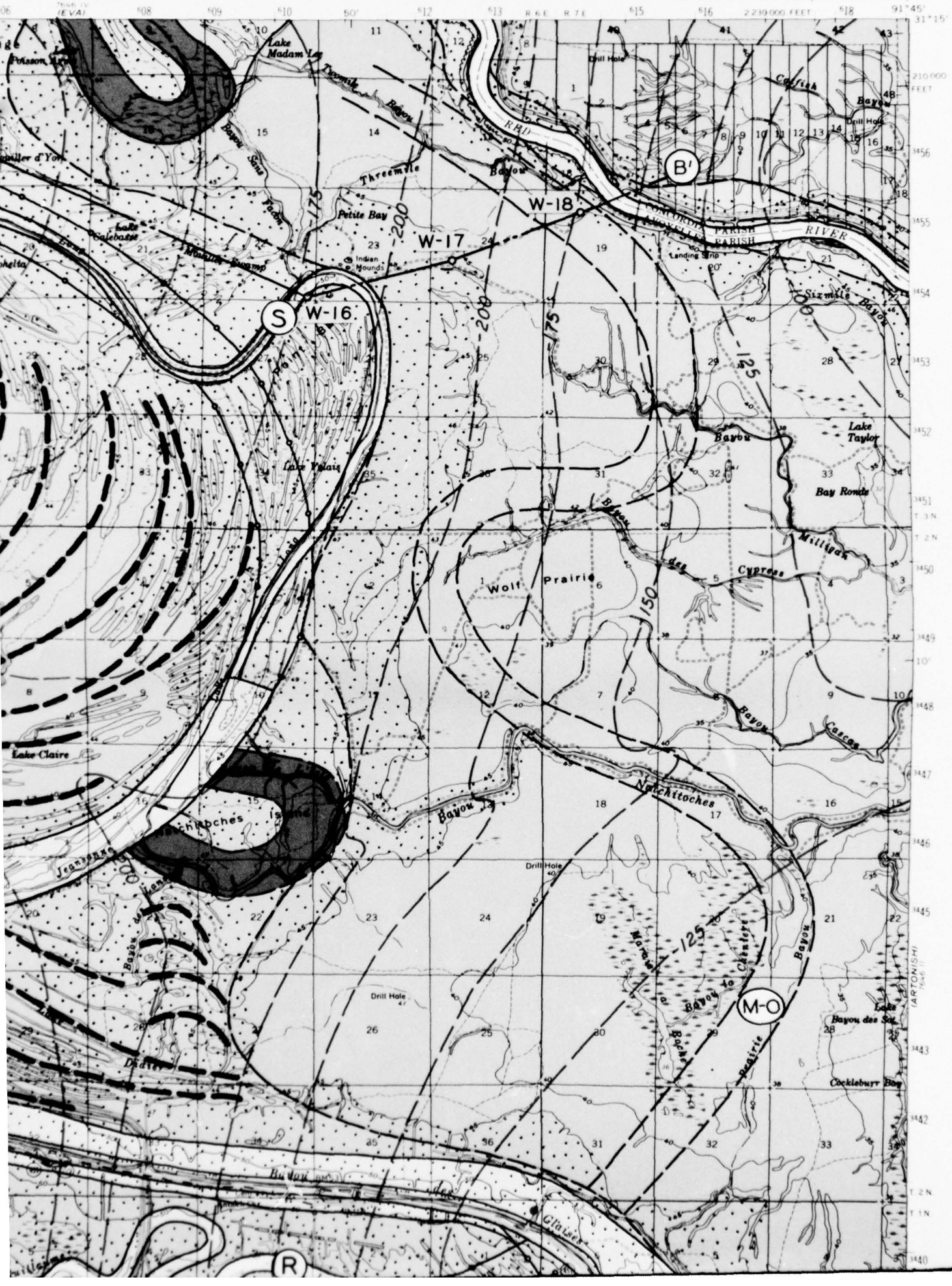
MOORINGSPORT, LA.

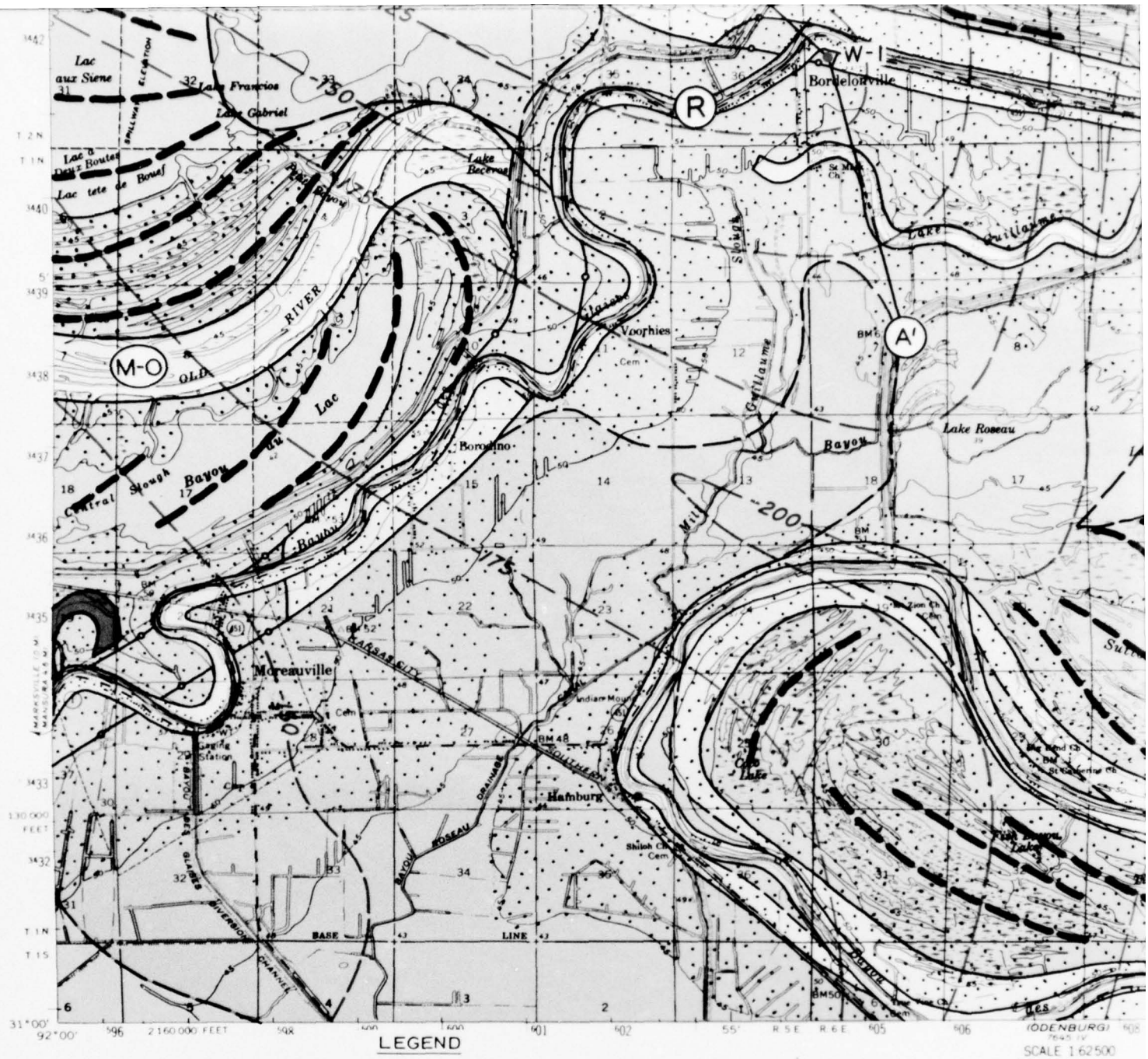
4


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF LOUISIAN
DEPARTMENT OF PUBLIC
BATON ROUGE
A
B
R
W-1
W-3
W-5
W-6
W-7
W-8
W-11
P-1
P-2
M-O
RED RIVER
Lake St Agnes
White Oak Ridge
Pointe Tournant
Lake Ophelia
Lake Ambrose
Lake Claire
Lake Valerie
Lake Grand Bayou
Lake Solier
Indian Cypress Brake
Bordelonville
Lac aux Siene
Lake Francios
Lake Gabriel
Drill Hole
-100
-125
-150
-175
-200
T 3 N
T 2 N
T 1 N

TATE OF LOUISIANA
TMENT OF PUBLIC WORKS
BATON ROUGE

MOREAUVILLE QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)





LEGEND

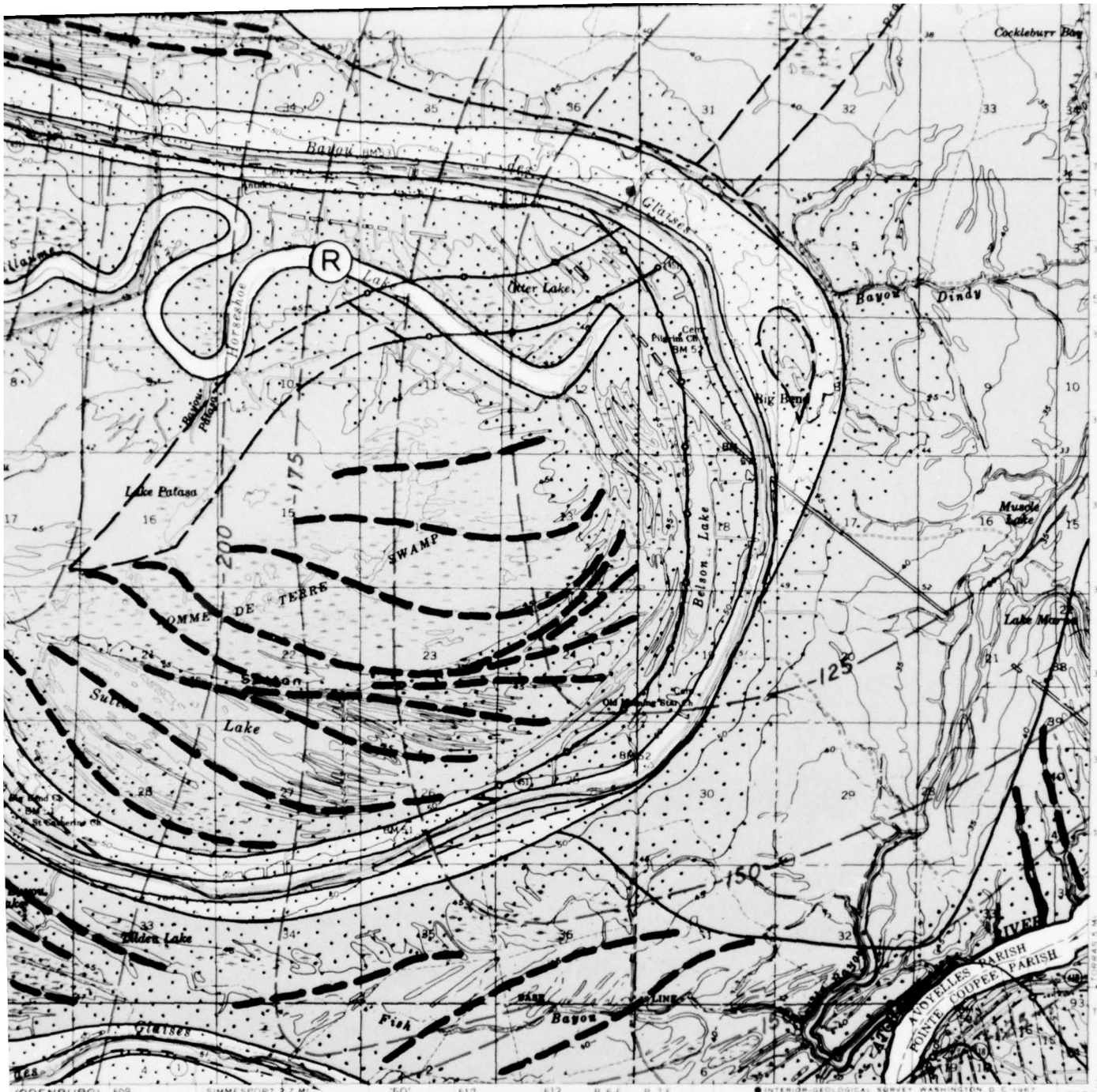
QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- MAJOR CREVASSE CHANNELS
- (M-O) COMBINED FLOW-MISSISSIPPI AND OHIO RIVERS
- (R) RED RIVER
- (S) SMALLER STREAMS

- SELECTED SWALES INDICATING TRENDS OF MEANDERS
- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED COURSE REWORKED BY SUBSEQUENT MEANDERING OF A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFACE
- O CLASS II BORING (NOT LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY

CONTOUR INTERVAL 5 FE
DATUM IS MEAN SEA LEVEL

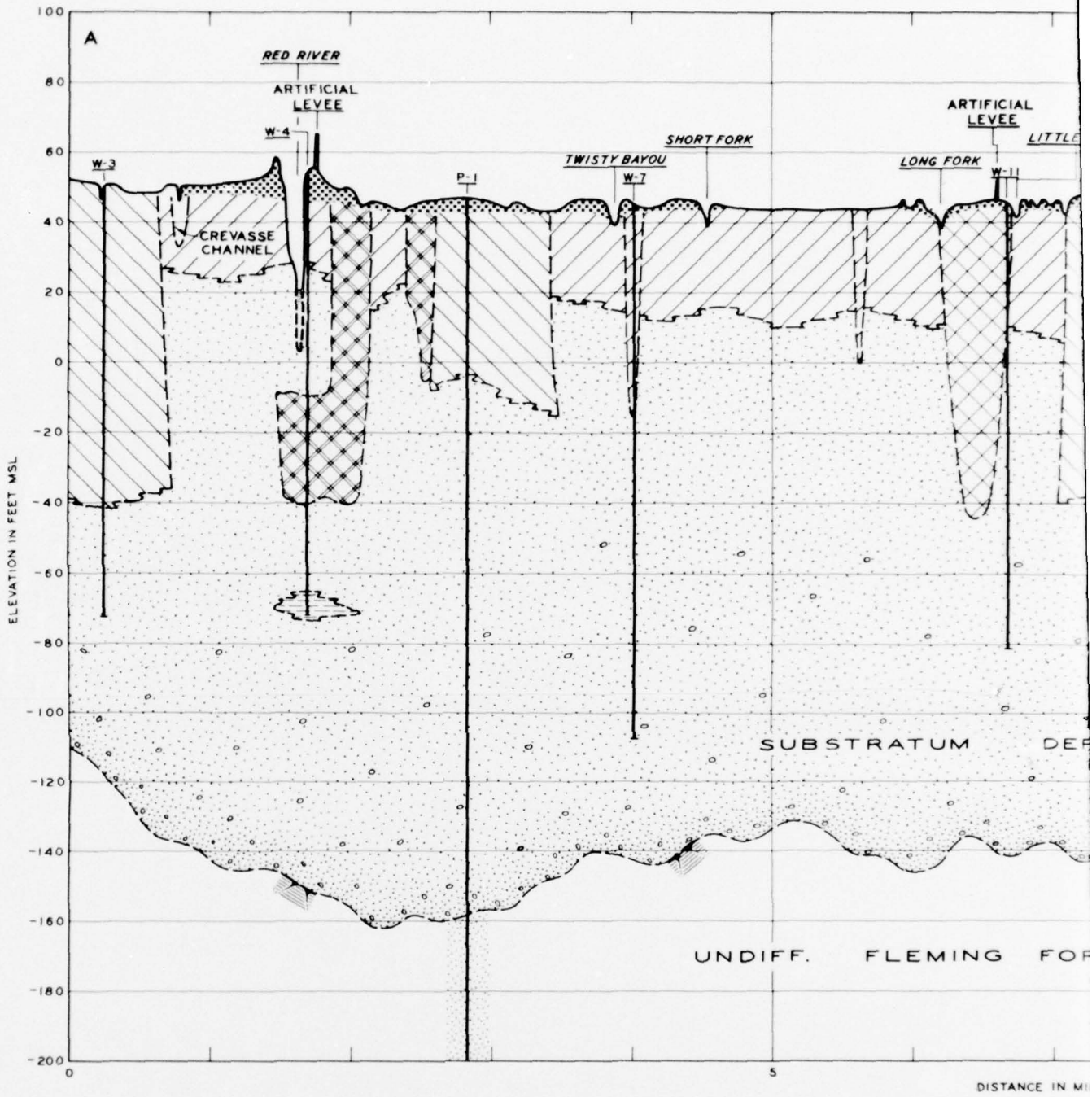


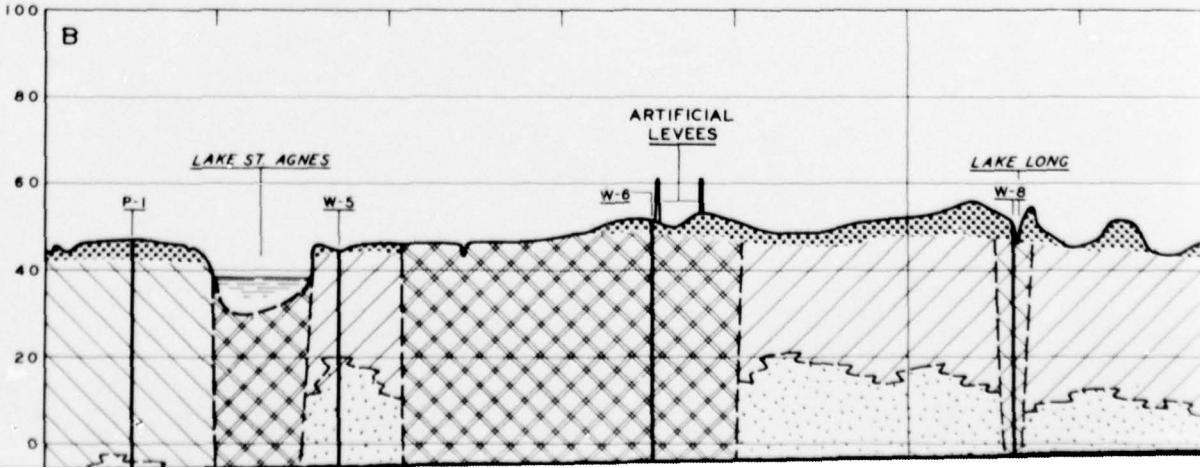
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

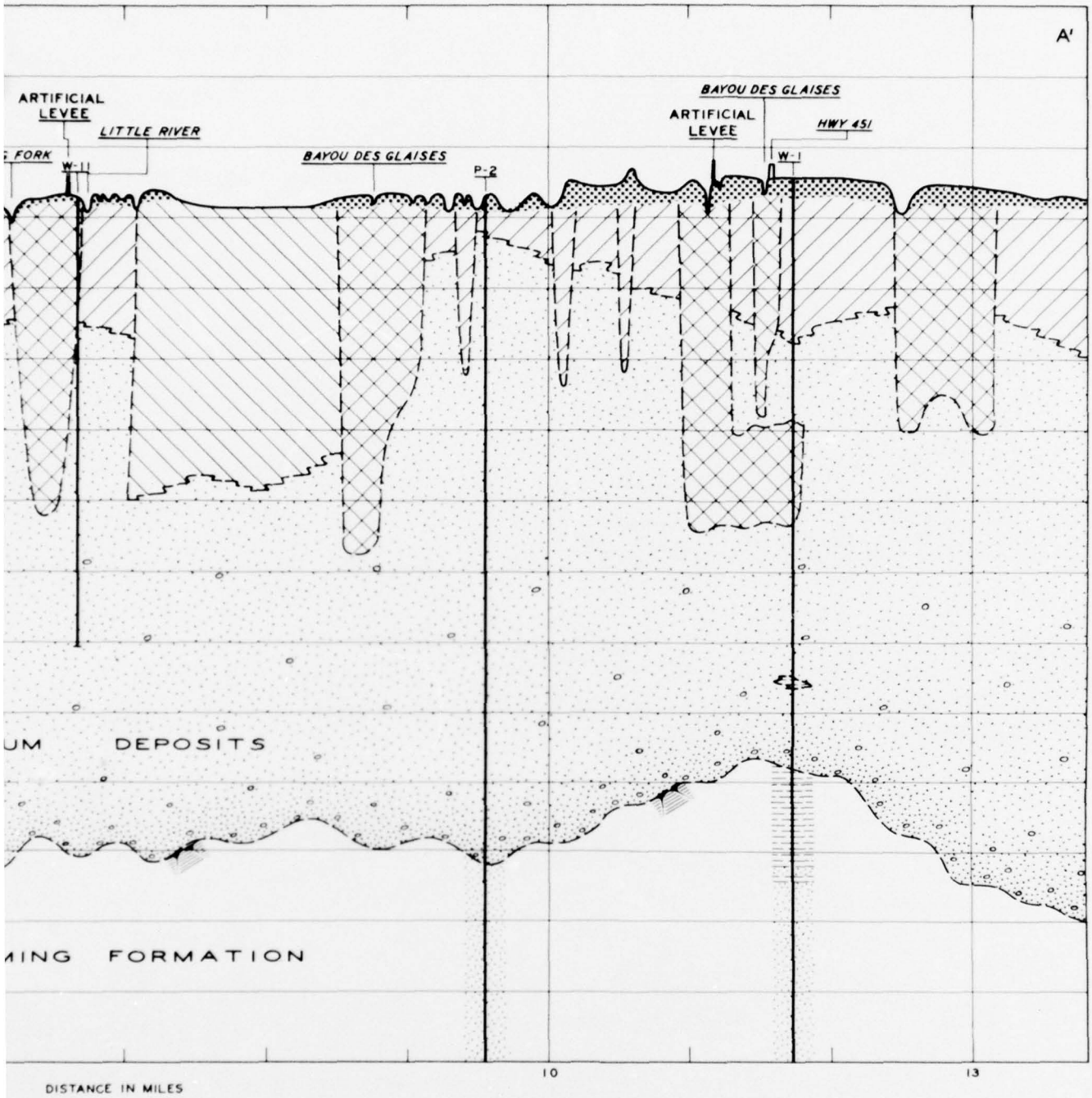
DISTRIBUTION OF ALLUVIAL DEPOSITS

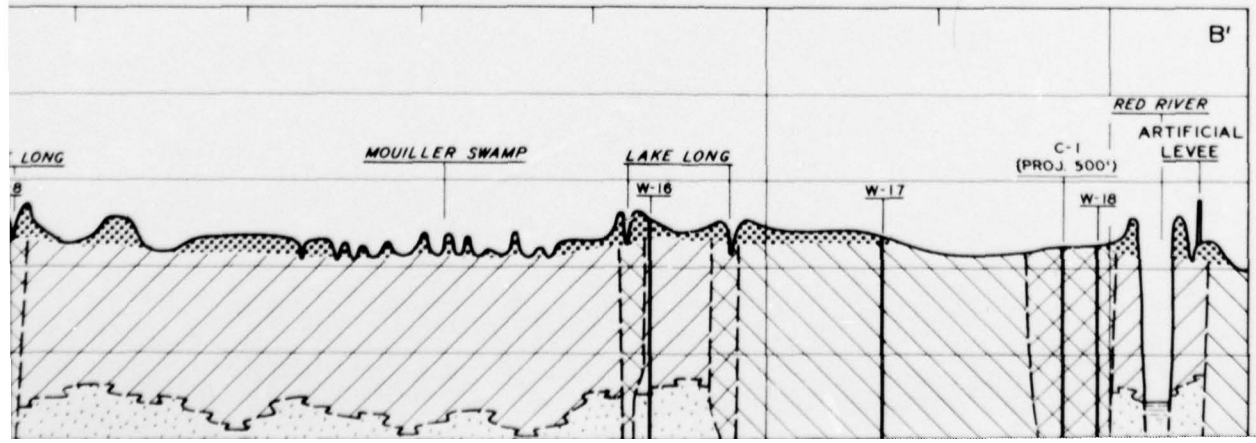
MOREAUVILLE, LA.

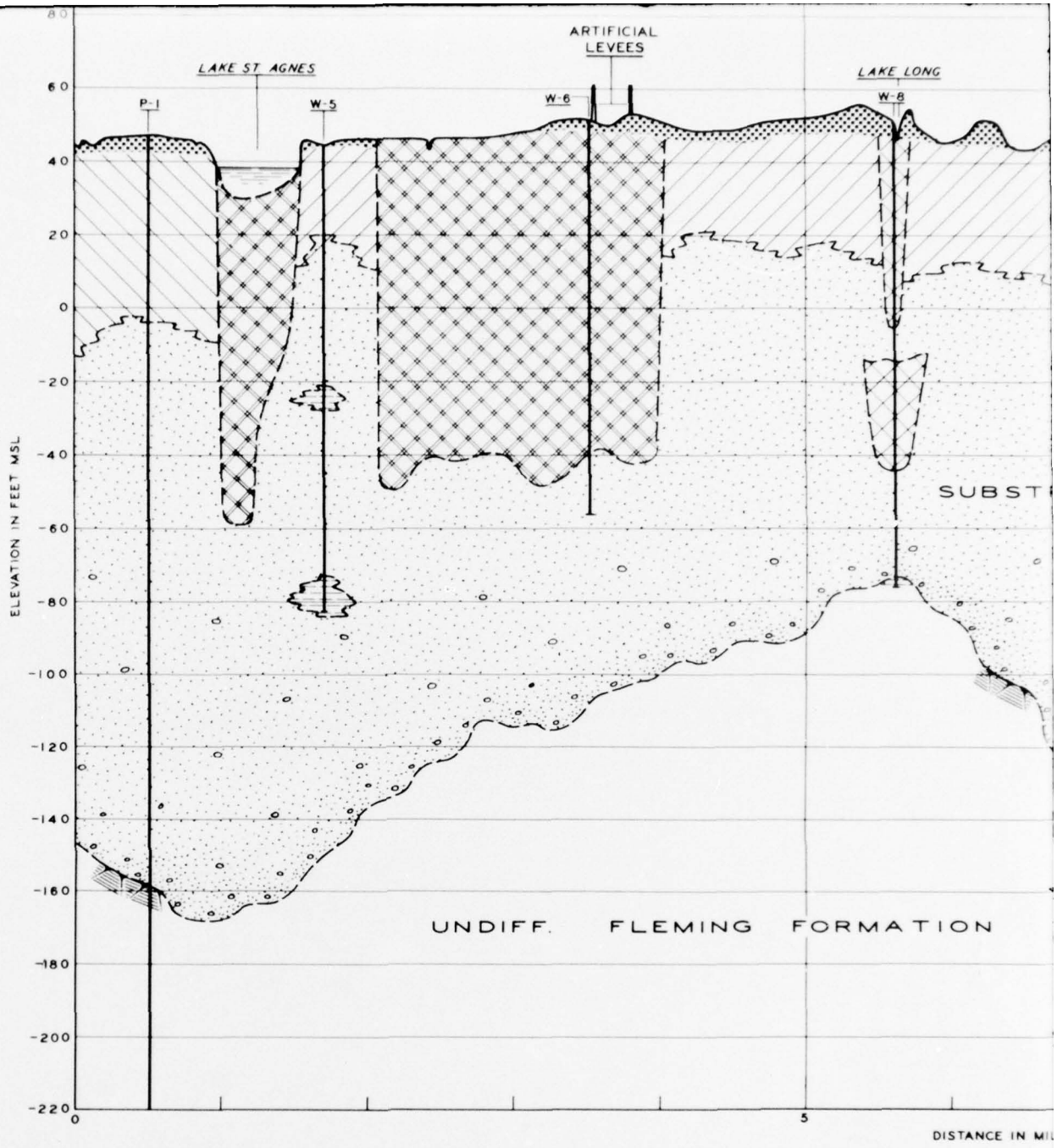
4


A
RED RIVER
ARTIFICIAL LEVEE
W-4
W-3
P-1
TWISTY BAYOU
W-7
SHORT FORK
ARTIFICIAL LEVEE
LONG FORK
W-1
LITTLE
CREVASSE CHANNEL
SUBSTRATUM
UNDIFF.
FLEMING FOR
ELEVATION IN FEET MSL
100
80
60
40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
0
5
DISTANCE IN MI


B
ARTIFICIAL LEVEES
LAKE ST. AGNES
LAKE LONG
P-1
W-5
W-6
W-8
100
80
60
40
20
0


A'
ARTIFICIAL LEVEE
LITTLE RIVER
FORK
W-11
BAYOU DES GLAISES
P-2
BAYOU DES GLAISES
ARTIFICIAL LEVEE
HWY 451
W-1
UM DEPOSITS
MING FORMATION
10
13
DISTANCE IN MILES


B'
LONG
MOUILLER SWAMP
LAKE LONG
W-16
W-17
C-1 (PROJ 500')
W-18
RED RIVER
ARTIFICIAL LEVEE



LEGEND

ENVIRONMENTS OF DEPOSITION

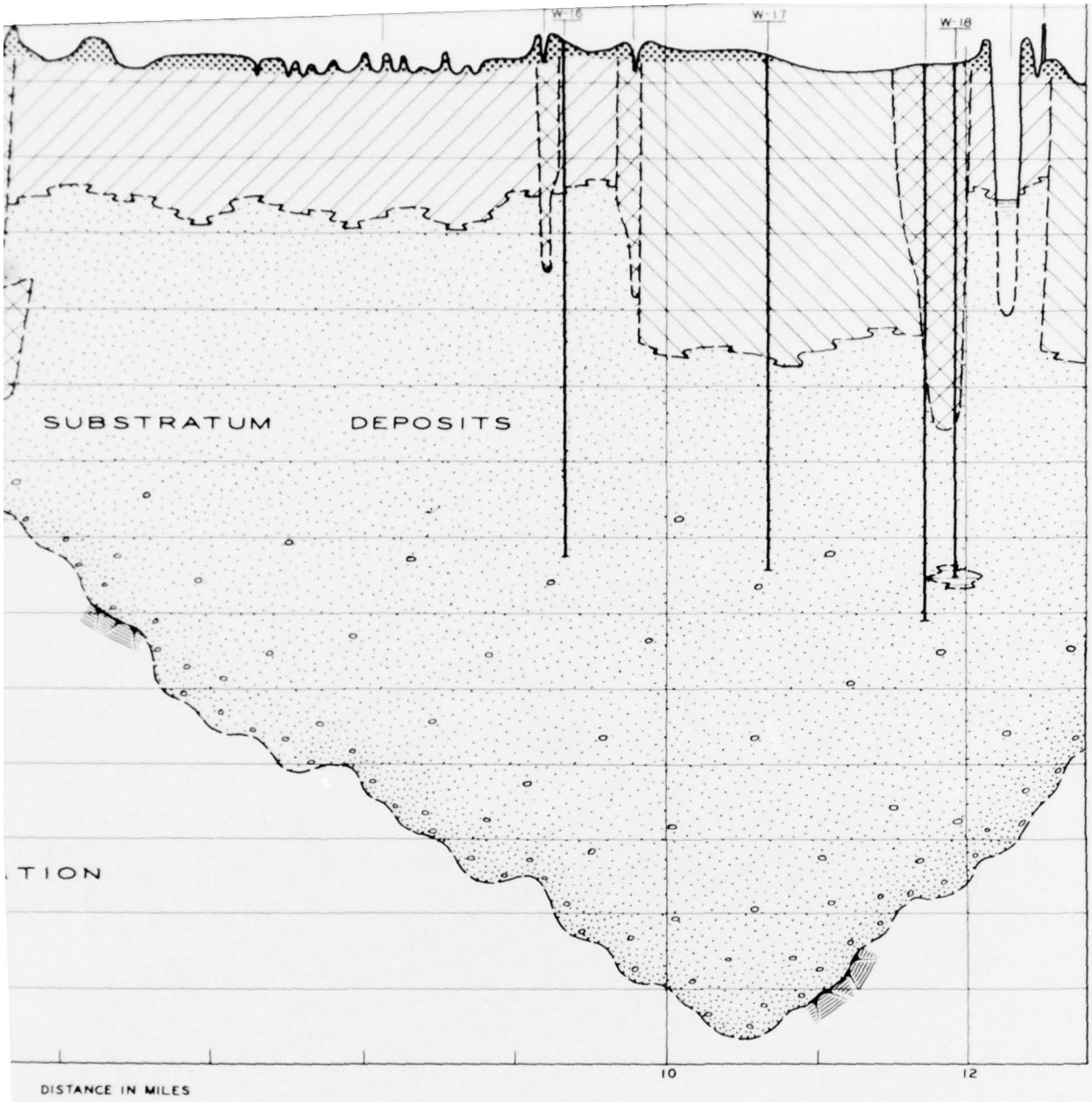
TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SAND AND GRAVEL

3

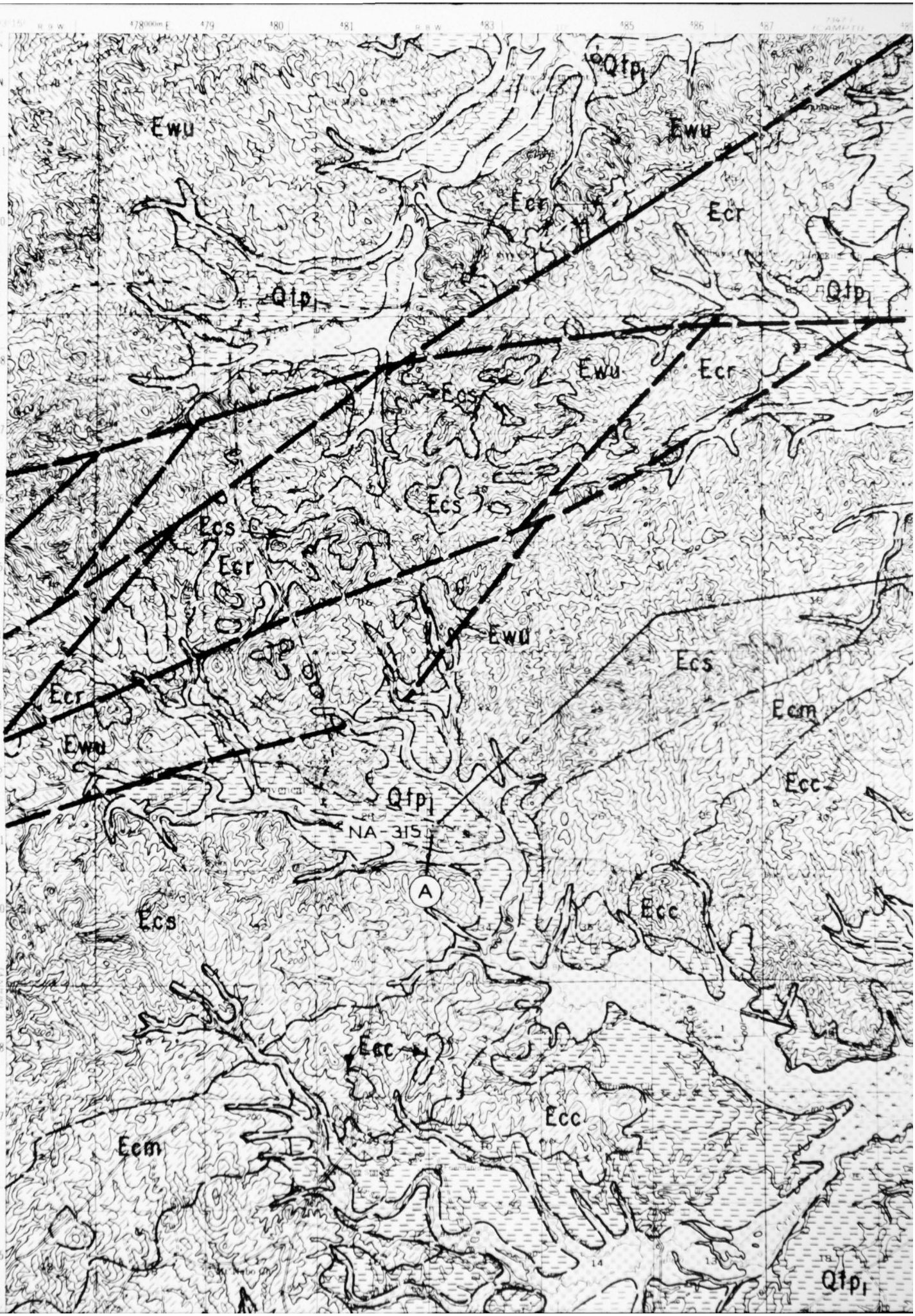


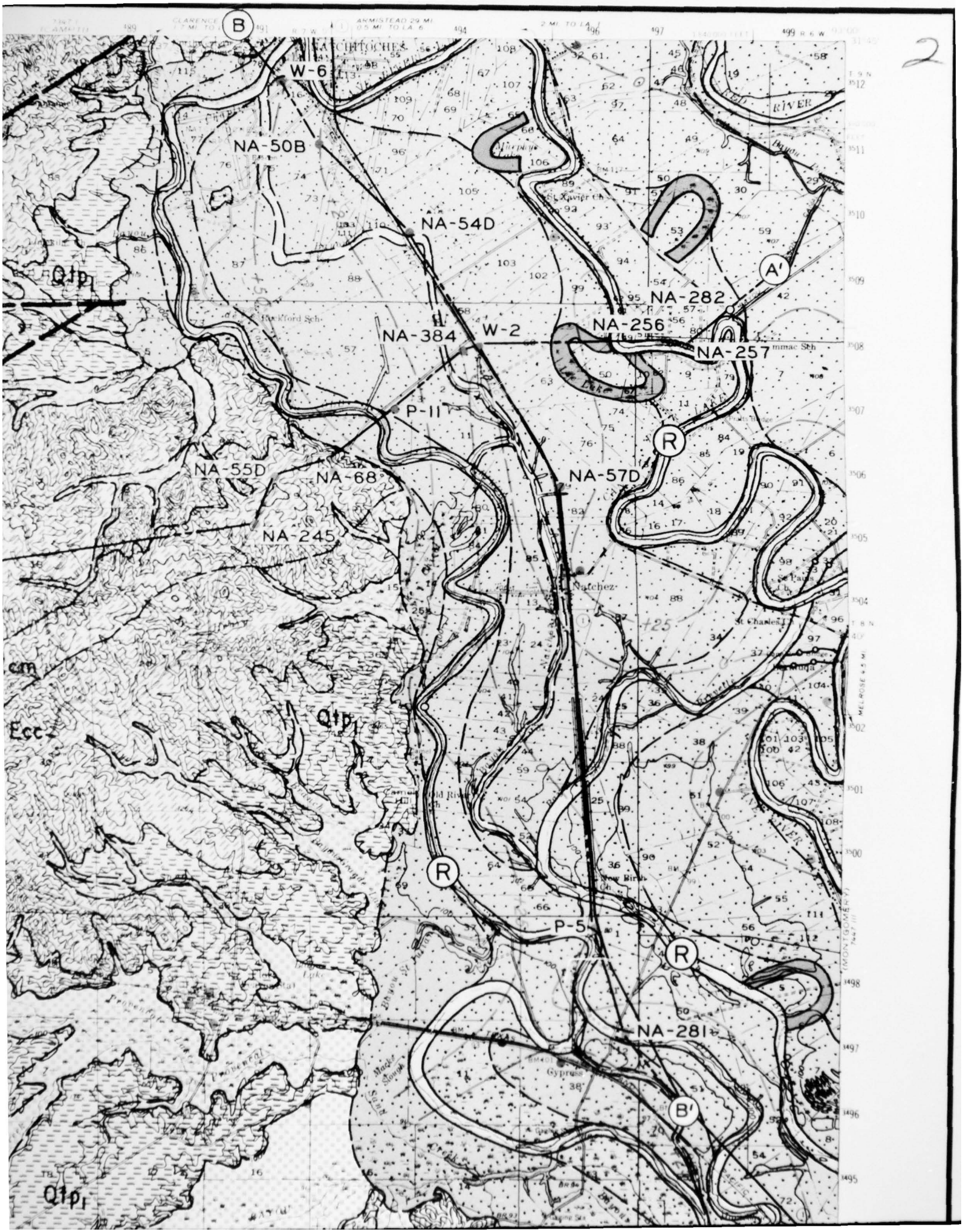
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

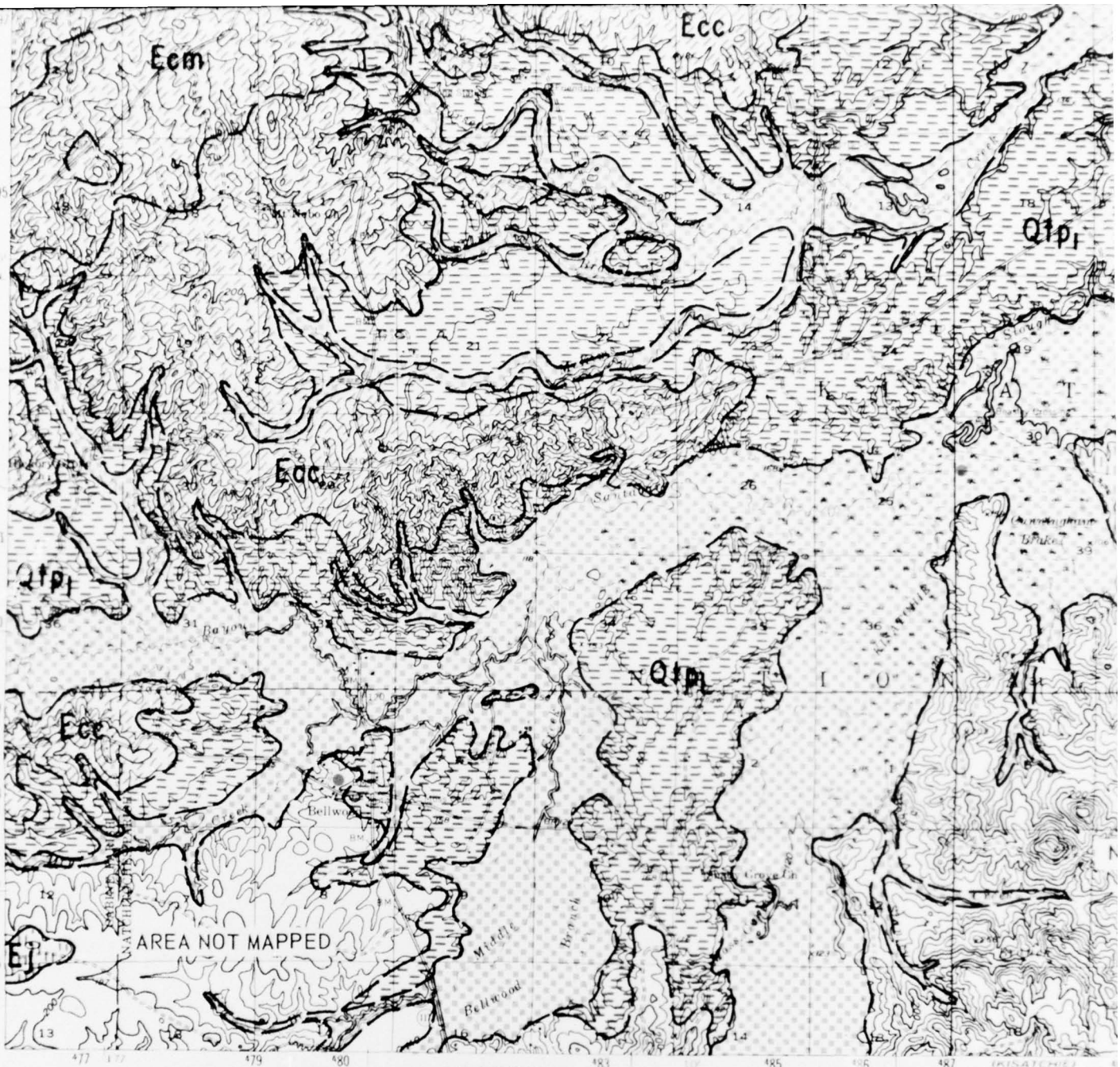
SECTIONS A-A' AND B-B'

MOREAUVILLE, LA.

4


Qfp1
Ewu
Ecr
Ecs
Ecm
Ecc
NA-315
A


B
W-6
NA-50B
NA-54D
Qtp1
A'
NA-282
NA-256
NA-384
W-2
NA-257
P-11
R
NA-55D
NA-68
NA-57D
NA-245
Natchez
cm
Ecc
Qtp1
R
P-5
R
NA-281
B'
Qtp1



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- MAJOR CREVASSE CHANNELS
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp — PRAIRIE TERRACE-UPPER SURFACE

TERTIARY

MIOCENE

- Mu — MIOCENE UNDIFFERENTIATED

OLIGOCENE

- Ov — VICKSBURG GROUP

EOCENE

- Ej — JACKSON GROUP
- Ecu — CLAIBORNE GROUP UNDIFFERENTIATED
- Ecg — COCKFIELD FORMATION
- Ecm — COOK MOUNTAIN FORMATION
- Ecs — SPARTA FORMATION
- Eci — CANE RIVER FORMATION

EOCENE–PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED

- (R) — RED RIVER
- INDEFINITE CONTACT
- CONTACT
- PROBABLE POSITION OF ABANDONED COURSE REWORKED BY SUBSEQUENT MEANDERING OF A STREAM
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) USED TO CONTOUR BURIED TERTIARY SURFAC
- CLASS I BORING (LOGGED BY SOILS SCIENTIST) NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN USED TO CONTOUR BURIED TERTIARY SURFAC
- CLASS II BORING (NOT LOGGED BY SOILS SCIEN NOT REACHING TERTIARY

3

NOTE: TERTIARY CONTACTS BASED ON LA. GEOLOGICAL SURVEY BULLETIN NO. 34, "GEOLOGY OF SABINE PARISH," BY H. V. ANDERSEN, 1960, LA. GEOLOGICAL SURVEY WATER RESOURCES BULLETIN NO. 4, "WATER RESOURCES OF NATCHITOCHES PARISH, LA." BY R. NEWCOME AND OTHERS, 1963, AND UNPUBLISHED MAP OF NATCHITOCHES PARISH BY H. V. ANDERSEN OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.

INTERIOR - GEOLOGICAL SURVEY, WASHINGTON, D. C. - 1966

SCALE 1:62500

4 MILES

21000 FEET

5 KILOMETERS

CONTOUR INTERVAL 20 FEET

DATUM IS MEAN SEA LEVEL

ONED
ENT

RY

LS SCIENTIST)
TIARY SURFACE

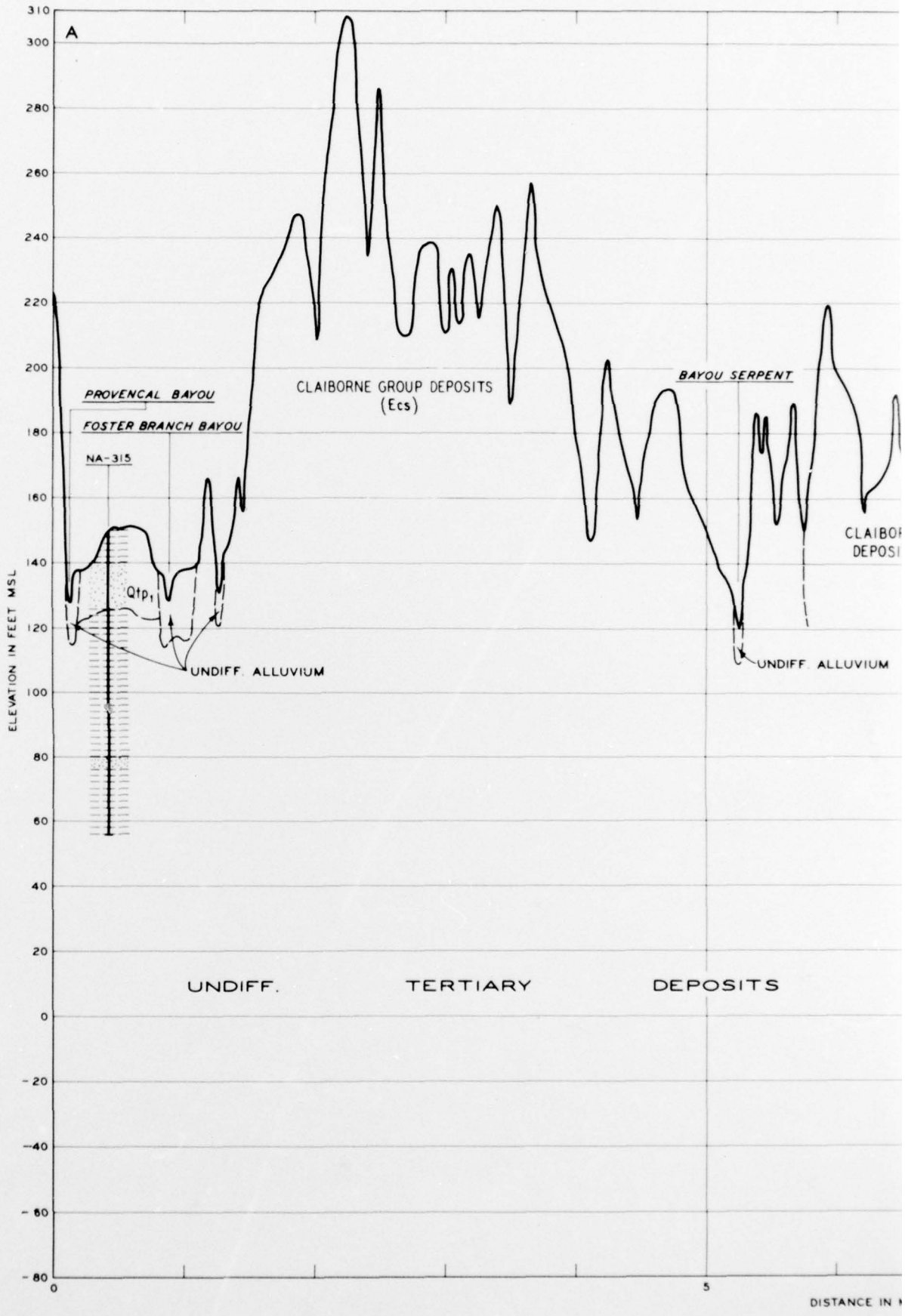
LS SCIENTIST)

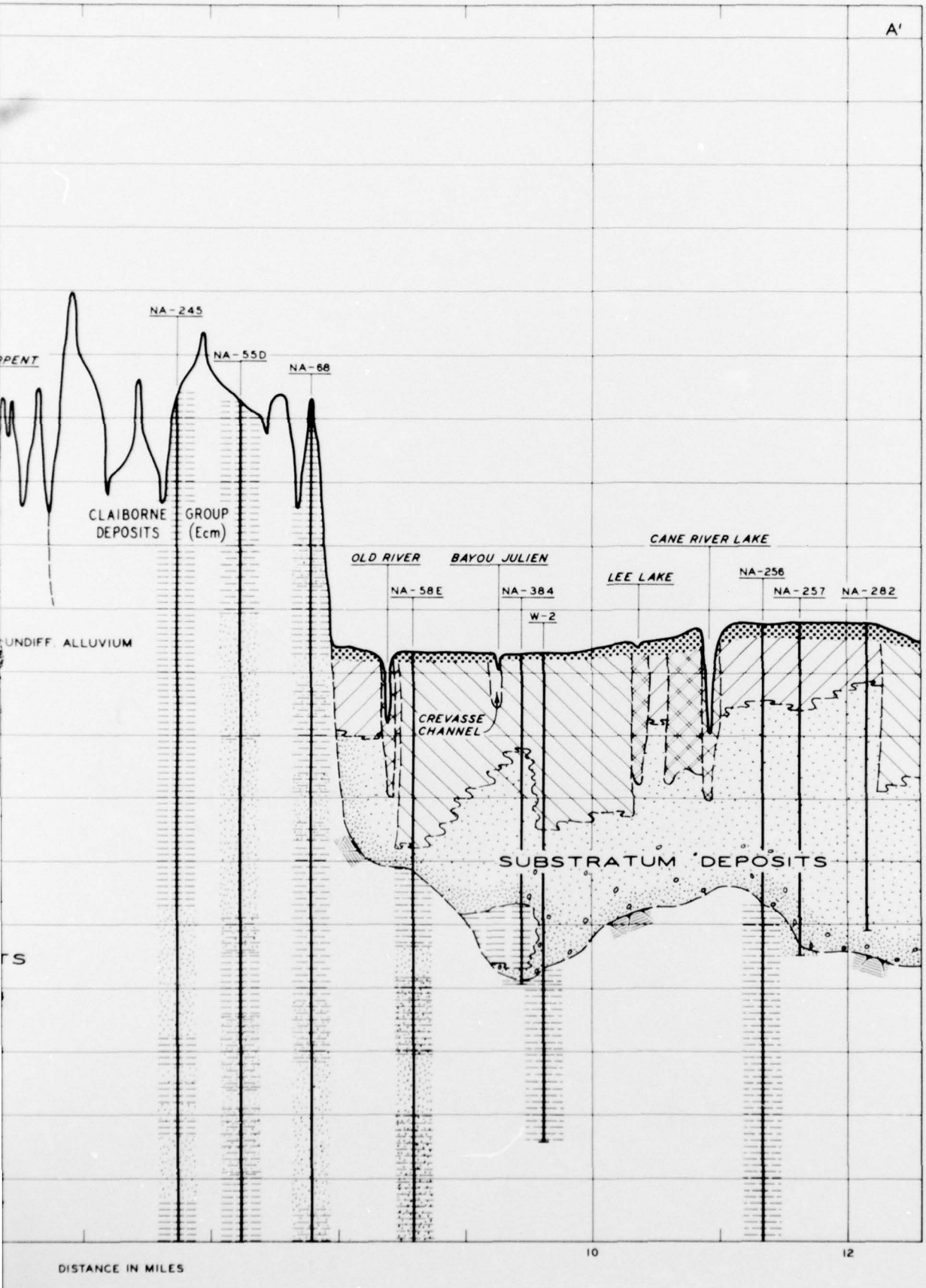
BY SOILS SCIENTIST)
TIARY SURFACE

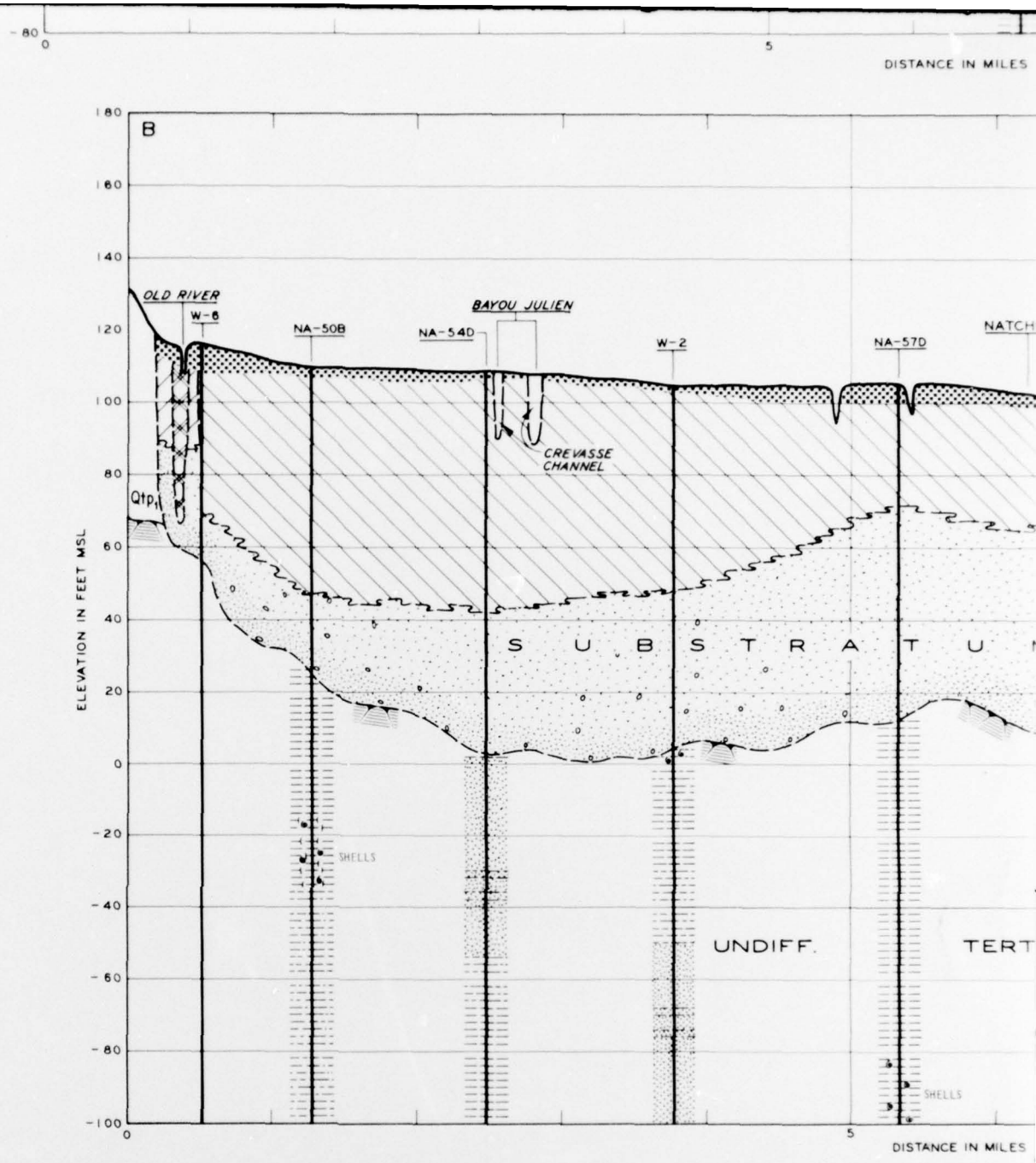
BY SOILS SCIENTIST)

GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
PROVENCAL, LA.

4


A
PROVENCAL BAYOU
FOSTER BRANCH BAYOU
NA-315
CLAIBORNE GROUP DEPOSITS
(Ecs)
BAYOU SERPENT
Qtp1
UNDIFF. ALLUVIUM
UNDIFF. ALLUVIUM
UNDIFF. TERTIARY DEPOSITS
ELEVATION IN FEET MSL
DISTANCE IN
B


A'
NA-245
NA-55D
NA-68
CLAIBORNE GROUP
DEPOSITS (Ecm)
OLD RIVER
BAYOU JULIEN
CANE RIVER LAKE
LEE LAKE
NA-58E
NA-384
W-2
NA-256
NA-257
NA-282
CREVASSE CHANNEL
SUBSTRATUM DEPOSITS
10
12
DISTANCE IN MILES
B'



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

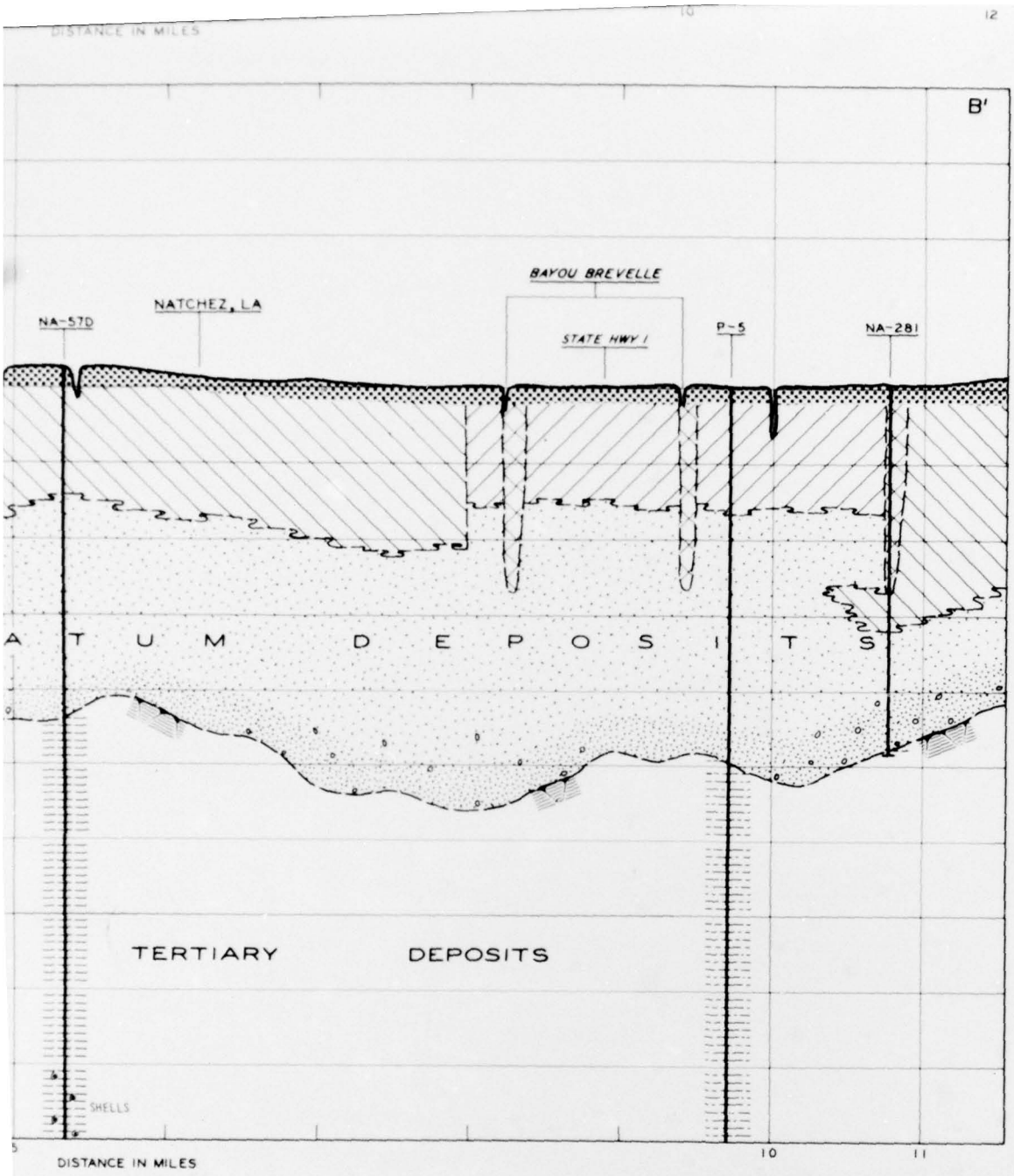
LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

- Qtp1 — PRAIRIE TERRACE-UPPER SURFACE
- Ecm — CLAIBORNE GROUP DEPOSITS (COOK MOUNTAIN FORMATION)
- Ecs — CLAIBORNE GROUP DEPOSITS (SPARATA FORMATION)

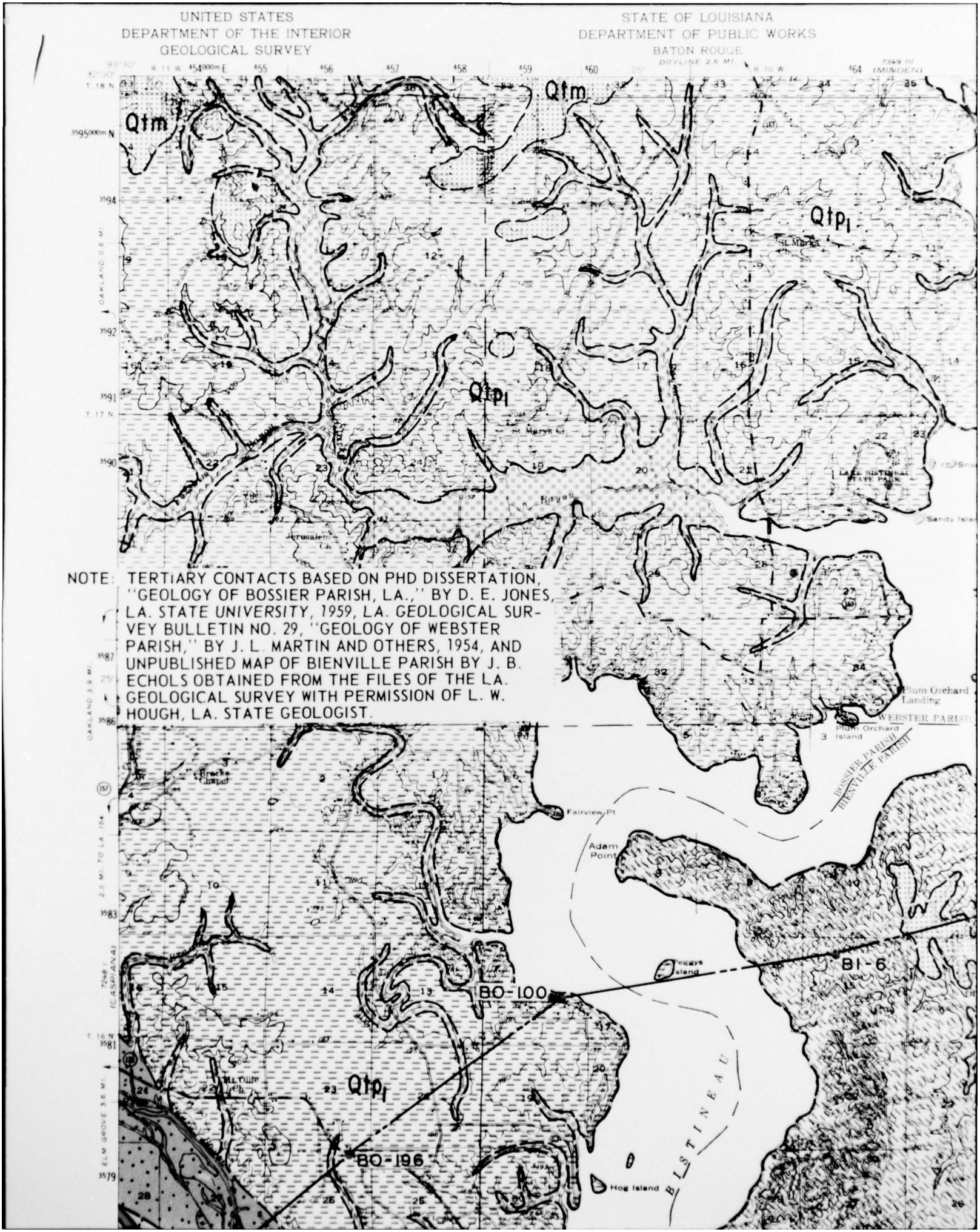
3



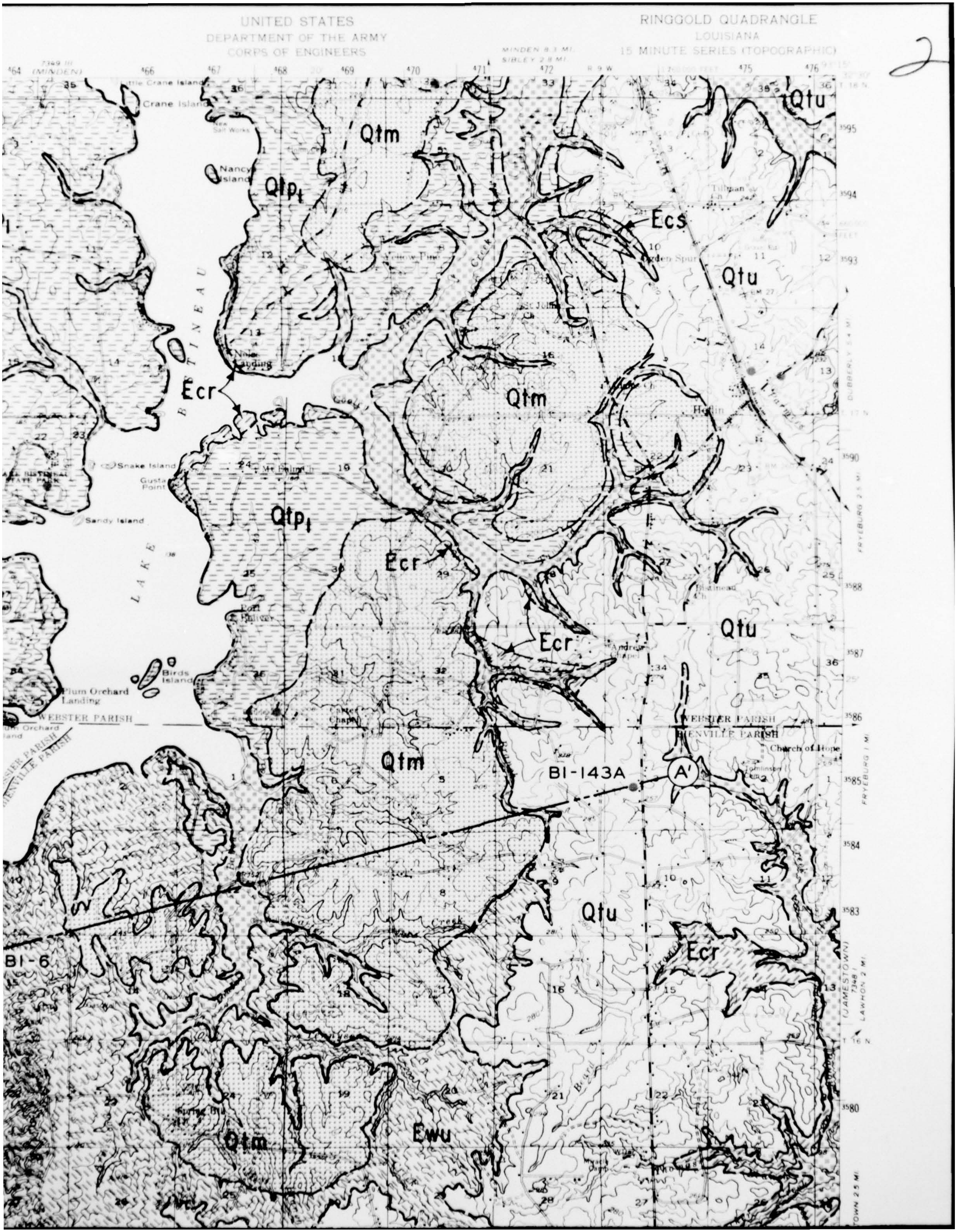
GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA

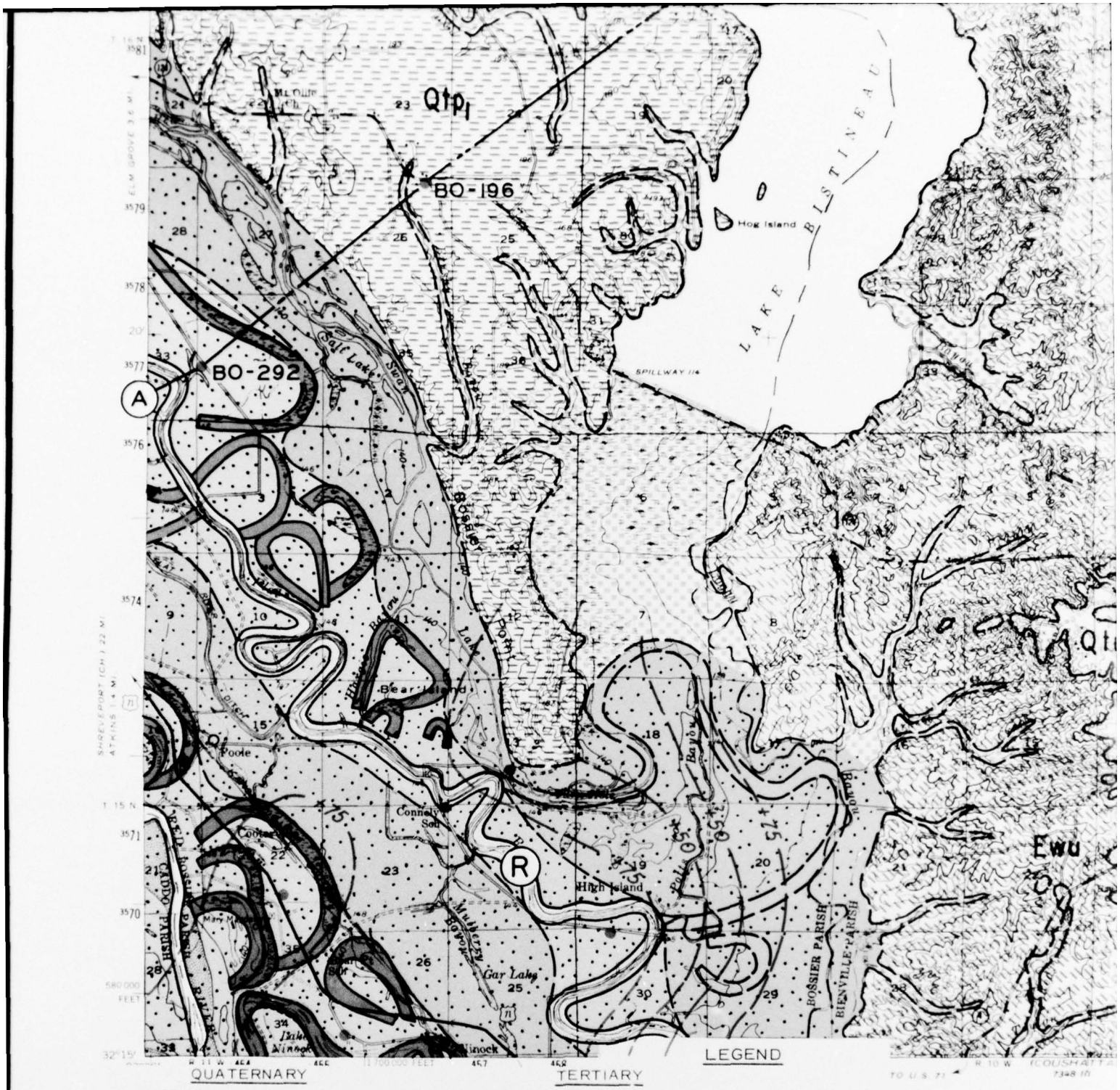
SECTIONS A-A' AND B-B'

PROVENCAL, LA.


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF LOUISIANA
DEPARTMENT OF PUBLIC WORKS
BATON ROUGE
Qtm
Qtm
Qtp1
Qtp1
Qtp1
NOTE: TERTIARY CONTACTS BASED ON PHD DISSERTATION, "GEOLOGY OF BOSSIER PARISH, LA.," BY D. E. JONES, LA. STATE UNIVERSITY, 1959, LA. GEOLOGICAL SURVEY BULLETIN NO. 29, "GEOLOGY OF WEBSTER PARISH," BY J. L. MARTIN AND OTHERS, 1954, AND UNPUBLISHED MAP OF BIENVILLE PARISH BY J. B. ECHOLS OBTAINED FROM THE FILES OF THE LA. GEOLOGICAL SURVEY WITH PERMISSION OF L. W. HOUGH, LA. STATE GEOLOGIST.
Plum Orchard Landing
WEBSTER PARISH
BOSSIER PARISH
BIENVILLE PARISH
Fairview Pt
Adam Point
Peggys Island
Hog Island
BISTINEAU
BI-6
BO-100
BO-196
Sandy Island

2


UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
RINGGOLD QUADRANGLE
LOUISIANA
15 MINUTE SERIES (TOPOGRAPHIC)
Qtu
Qtm
Qtp1
Ecs
Ecr
Ewu
BI-143A
A'
BI-6
Crane Island
Nancy Island
Snake Island
Sandy Island
Birds Island
Plum Orchard Landing
LAKE
BISTINEAU
WEBSTER PARISH
BIENVILLE PARISH
Church of Hope



LEGEND

QUATERNARY

RECENT

- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE
- UNDIFFERENTIATED ALLUVIUM OF SMALL STREAMS

PLEISTOCENE

- Qtp — PRAIRIE TERRACE-UPPER SURFACE
- Qtm — MONTGOMERY TERRACE
- Qtu — UNDIFFERENTIATED TERRACE

TERTIARY

EOCENE

- Ecu — CLAIBORNE GROUP UNDIFFERENTIATED
- Ecs — SPARTA FORMATION
- Ecr — CANE RIVER FORMATION

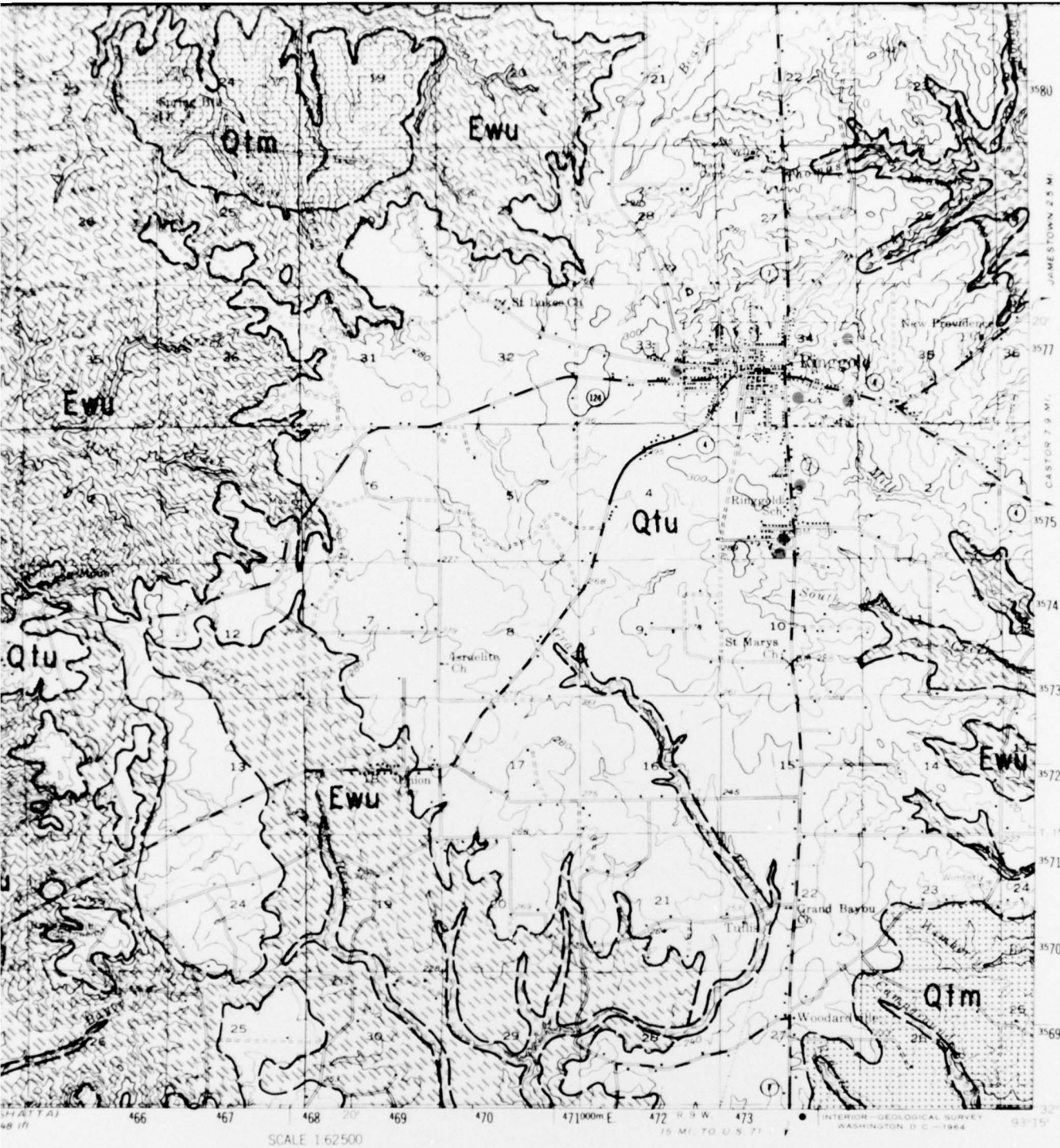
EOCENE-PALEOCENE

- Ewu — WILCOX GROUP UNDIFFERENTIATED

- ABANDONED COURSE AND CHANNEL DEPOSITS COVERED WITH THIN BACK-SWAMP DEPOSITS
- (R) RED RIVER

- INDEFINITE CONTACT
- CONTACT
- ELEVATION OF TOP OF TERTIARY SURFACE IN FEET-MSL
- CLASS I BORING (LOGGED BY SOIL USED TO CONTOUR BURIED TERT
- CLASS I BORING (LOGGED BY SOIL NOT REACHING TERTIARY
- CLASS II BORING (NOT LOGGED BY USED TO CONTOUR BURIED TERT
- CLASS II BORING (NOT LOGGED BY NOT REACHING TERTIARY

3



ERTIARY

BY SOILS SCIENTIST)
D TERTIARY SURFACE

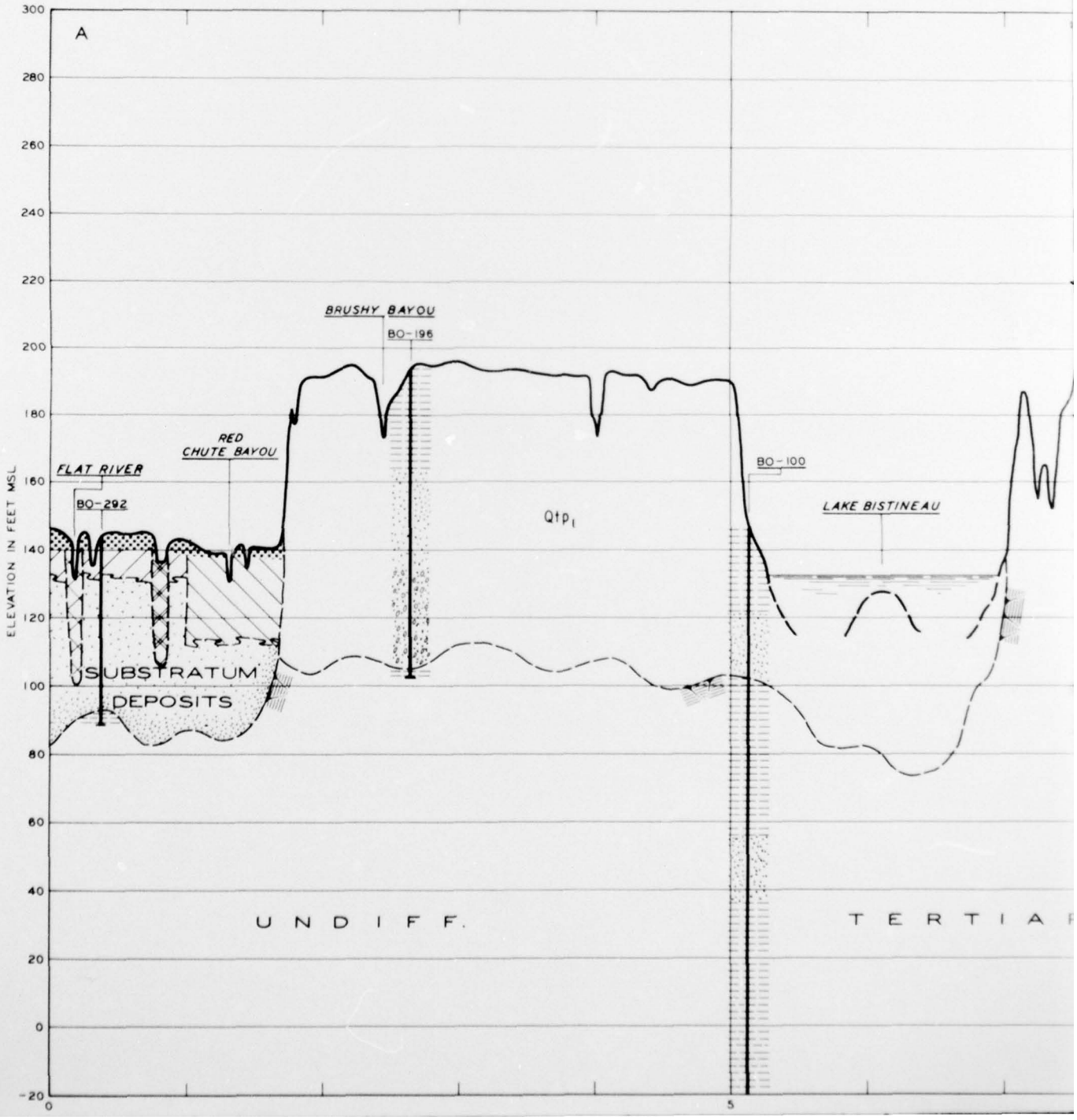
BY SOILS SCIENTIST)

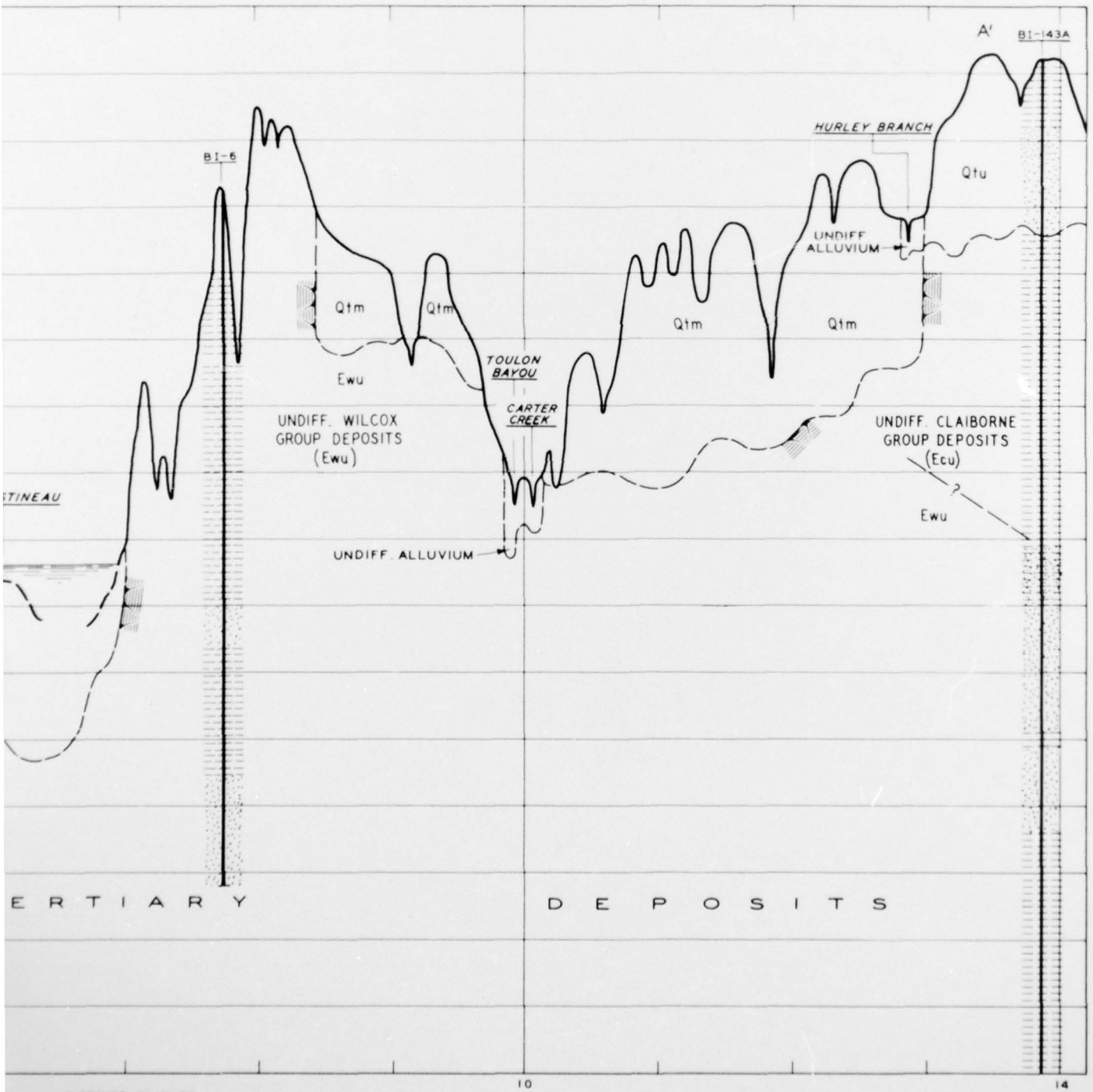
GED BY SOILS SCIENTIST)
D TERTIARY SURFACE

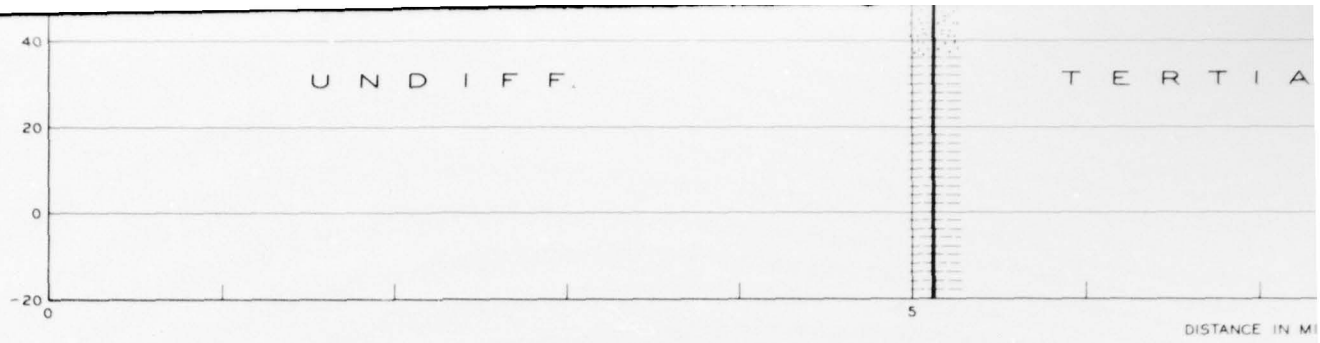
GED BY SOILS SCIENTIST)

GEOLOGICAL INVESTIGATION
LOWER RED RIVER - ATCHAFALAYA BASIN AREA
DISTRIBUTION OF ALLUVIAL DEPOSITS
RINGGOLD, LA.

4


A
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
-20
ELEVATION IN FEET MSL
FLAT RIVER
BO-292
RED CHUTE BAYOU
BRUSHY BAYOU
BO-196
BO-100
LAKE BISTINEAU
Qtp1
SUBSTRATUM DEPOSITS
UNDIFF.
TERTIA
0
5


A'
BI-143A
HURLEY BRANCH
BI-6
Qtu
UNDIFF. ALLUVIUM
Qtm
Qtm
Qtm
Qtm
Ewu
TOULON BAYOU
CARTER CREEK
UNDIFF. WILCOX GROUP DEPOSITS (Ewu)
UNDIFF. CLAIBORNE GROUP DEPOSITS (Ecu)
?
Ewu
UNDIFF. ALLUVIUM
E R T I A R Y
D E P O S I T S
10
14
DISTANCE IN MILES



LEGEND

ENVIRONMENTS OF DEPOSITION

TOPSTRATUM
- NATURAL LEVEE
- POINT BAR
- BACKSWAMP
- ABANDONED CHANNEL
- ABANDONED COURSE

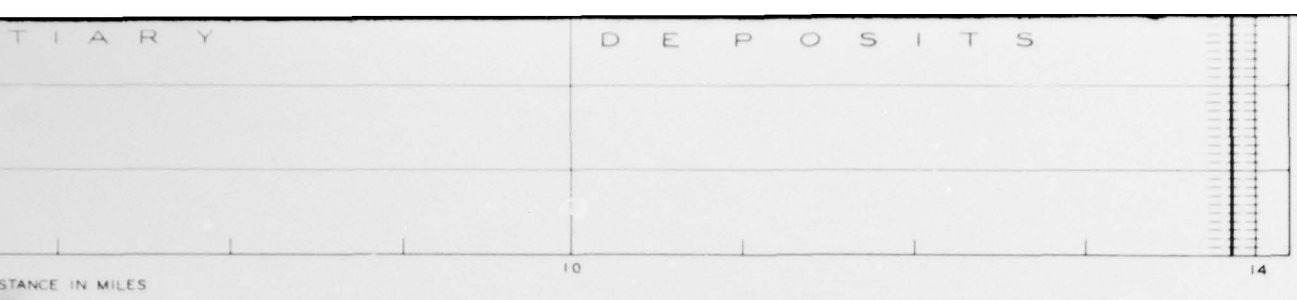
SUBSTRATUM
- UNDIFFERENTIATED SAND AND GRAVEL
- TERTIARY SURFACE

LITHOLOGIC TYPES

- SAND
- CLAY AND SILT
- SHALE

MAPPING SYMBOLS

- Qtp_1 PRAIRIE TERRACE- UPPER SURFACE
- Qtm MONTGOMERY TERRACE
- Qtu UNDIFFERENTIATED TERRACE
- Ewu UNDIFFERENTIATED WILCOX GROUP DEPOSITS



GEOLOGICAL INVESTIGATION
LOWER RED RIVER-ATCHAFALAYA BASIN AREA

SECTION A-A'

RINGGOLD, LA.

RINGGOLD (b)